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Data collected from 85.1% of the 208 women recipients of the doctorate from Oklahoma universities reveal that they are well rewarded for their scholarly efforts. The study examined personal characteristics, the motivational, enabling and impeding factors to attainment of the degree, and the value of the degree to the recipients and to society in terms of use and satisfaction. In tests of hypotheses, the time lapse between conferral of the bachelor's to the doctorate, the years spent pursuing the degree, choice of institution, and type of employment were investigated. The reported return to work of 99% of the women, their satisfaction with their professional, personal and financial status indicate that society also benefits from their investment. For many women, the lack of guidance, counseling, or cultural expectations delay acquisition of the doctorate; apparently they could complete their studies in less time if more financial aid was available. Discrimination in employment remains, and the private sector, backed by the academic and business communities, should undertake action programs matching those of the federal government to effect a more equitable reception of women. (WM)

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October, 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Susan Barber Mitchell

Oklahoma State University
Research Foundation
Stillwater, Oklahoma

October, 1968

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HEALTH, EDUCATION, AND WELFARE

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CHAPTER I

THE NATURE OF THE PROBLEM

The Problem

This dissertation reports the findings of a descriptive survey which seeks to discover and describe the characteristics of Oklahoma's women doctoral recipients. These scholarly women had diverse origins and are at present dispersed over the nation in residence and employment. Thus, generalization of this study may be possible, particularly to the surrounding geographical area to the north, east, and south of Oklahoma.

The study examines motivational and enabling or impeding factors and their relationship to time lapse from the bachelor's degree to the doctorate, years pursuing the doctorate, and choice of doctoral institution. The type of present employment is also investigated in relationship to use of the degree and satisfaction.

Background and Value of the Study

The absolute number of women earning doctor's degrees is increasing, but the proportion of women among all doctorate recipients has shown little increase since 1950 and is, indeed, smaller than in the 1930's. Because comparatively few women pursue and achieve the degree there are too few models to help establish the doctorate as a "visible" goal to be sought after as women plan and live their lives. Thus there is mounting concern that women are not doing themselves or the nation justice in failing to prepare themselves to fill professional and technical positions that require high level competencies.

The present study is undertaken to add new data and new dimensions to the growing information about women doctoral recipients. Its subjects are the total composite product, through the 1967 summer commencement, of the three universities in Oklahoma which grant the doctor's degree. They provide a sizable sample of women doctorates, diverse in origin and presently well dispersed over the nation. The wide range among them in the number of years the doctorate has been held provides both a short-term and long-term view of reactions to the doctorate.

The findings of the study may prove of value in the following ways:

1. To encourage women who have vacillated in their consideration of the doctoral undertaking and perhaps to provide the additional motivation or impetus that may be needed for them to make a positive decision in this direction.

2. To interest women who have not previously considered embarking upon doctoral study. Knowing the experiences of women who have achieved the doctorate and the worth of the degree to them in terms of use and satisfaction may provide this interest.

3. To present to universities and to graduate schools findings which assess those enabling or impeding factors which may be institutionally derived and possible of modification. Some procedures may need to be adapted in order to nurture and guide those outstanding women who would serve as models of excellence to others.

Purposes of the Present Study

The present study has these purposes:

1. To increase knowledge of the personal characteristics of women doctoral recipients, which, when added to present knowledge, will help to delineate more clearly the slowly emerging, and possible changing, profile of women who earn doctor's degrees.

2. To increase knowledge as to the factors that motivate and enable women to enter the doctoral program.

3. To gather information on the subsequent use of the doctorate so as to assess the worth of the degree to society and to the holder of the degree.

4. To test hypotheses concerning the relationship of time lapse from the bachelor's degree until the doctorate, years pursuing the doctorate, and choice of the doctoral institution to motivational and enabling or impeding factors; and type of employment to use of the degree and satisfactions from it.

Assumptions

This study is based on these general premises:

1. It is desirable for more women to earn doctorates so as to enable them to make fuller use of their own competencies as well as to develop their talents as a national resource.

2. Women should be aided and encouraged to earn their doctorates as early in life as is feasible so as to realize maximum personal gain and make a maximum contribution to society.

3. Women doctoral recipients can make one of the best assessments of the factors that motivate, enable, impede, and yield satisfaction in

the striving for and achieving of the doctoral degree.

4. A variety of experiences will be expected, varying with the types of graduate programs, the institutions attended, and the life situations of the women.

Particular assumptions also underlie the hypotheses tested in this study:

1. The rate at which the doctorate is achieved is affected by the life experiences and life situations of these women both prior to and during their studies.

2. The choice of a doctoral institution is affected by the life experiences and life situations of the women aspirants to the doctor's degree.

3. The types of use which the women doctorates make of their degrees influence their subsequent success and satisfaction in life.

Population, Sample, Scope, and Method

The University of Oklahoma was the first institution in Oklahoma to offer the doctor's degree, and the first doctorate it awarded was earned by a woman in 1929. In all, 158 women had earned doctorates at the University of Oklahoma through the 1967 summer commencement.

The Oklahoma State University began granting the doctorate in 1942, but the first such degree earned by a woman was in 1948. The total number of doctorates earned by women at Oklahoma State University through the summer commencement of 1967 was 47.

The University of Tulsa granted its first doctorate in 1953. The following year the first women completed doctorates at that institution. A total of nineteen women had earned doctorates at the University of

Tulsa through the 1967 yearly commencement.

These 224 women comprise the population of Oklahoma's women doctoral recipients and are the concern of this study. Because the data indicate these women to be of wide origin and even wider dispersion over the nation in the use of their doctorates, it may be possible to generalize this study beyond the confines of Oklahoma. The variation in length of time the doctorate has been held by the women in the study allows for increased perspective as to the usefulness of the degree to the holder and to society.

The data-gathering instrument for this study was a four-page questionnaire, whose development was an outgrowth of examination of other questionnaires as well as original formulation. The cooperation accorded the inquiry demonstrates wide interest and professional courtesy among the respondents.

Statistical analyses, described in Chapter III, were made of the data collected by these questionnaires to test the hypotheses of interest. Measurements involving percentages, means, medians and frequency counts were used to highlight the descriptive data.

Limitations of the Study

Certain limitations operating in this study in relation to the sample, the questionnaire, and the statistical analysis should be recognized.

The list of women doctoral recipients from two of the institutions had to be gleaned from commencement programs covering the entire period involved. The possibility exists that a name may have been overlooked or that a name as printed was not recognized as feminine in sex. It is not probable that the list of women doctoral recipients is in error more than a very few names, if at all, but this contingency must be noted.

There is a possibility of bias in the study because of the absence of information from non-respondents. The return of 85 percent of those contacted is higher than for many studies contained in the literature and it is felt that the findings are not seriously biased because of the failure of some Oklahoma women doctoral recipients to participate in the study.[1]

The fact that three institutions are involved should help to overcome the possibility of institutional idiosyncracy and make the findings more general. The uneven distribution of the population among the three institutions must be recognized, however.

The instrument of the study, the questionnaire, includes a number of checks and short answers which might impose limits upon the respondent in registering responses. However, a number of blanks were provided for free response explanations or answers, and their frequent use by many respondents seems to reduce to some extent any bias that the format of the questionnaire may have engendered.

Reporting the Study

This study is designed to examine the factors relating to time lapse from the bachelor's degree to the doctorate, years pursuing the doctorate, choice of doctoral institution, and usefulness of the degree to the women who have earned a doctorate at an Oklahoma institution of higher education.

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[1] A chi-square test showed no significant difference between respondents and non-respondents in fields of their degrees. Comparison of the median years in which the degrees were achieved finds the non-respondents' median to be one year before the respondents' median.

Chapter II reviews the literature of the last decade concerning professional preparation and opportunities for women, factors that are thought to enable or impede the attainment of the doctorate, and factors that are thought to enable or impede the use of the doctorate.

Chapter III discusses in more detail the design of the study, describing the instrument developed for gathering data and the procedure used in analyzing data and testing hypotheses.

Chapter IV presents descriptive information about the population of respondents and develops a profile of the women doctoral recipients.

Chapter V presents findings from testing the four major sets of hypotheses.

Chapter VI summarizes major findings and conclusions. It also suggests implications and possibilities for further research.

Summary

Because women are awarded a small proportion of all earned doctorates and because the present proportion is showing no appreciable pattern of growth, concern is expressed that women are not doing themselves or the nation justice in failing to prepare themselves to fill professional and technical positions that require high level competencies. This study is undertaken to help provide new information concerning women who have earned the doctorate in the hope that more women may be encouraged to accomplish this additional step in their formal education.

The study includes a review of the literature pertinent to professional preparation and factors that are thought to enable or impede attainment and use of the doctorate. It makes use of questionnaires sent to the women who have received a doctorate from an Oklahoma institution of higher education. Tests of hypotheses by appropriate statistical methods consider factors relating to time lapse from the bachelor's degree to the doctorate, years pursuing the doctorate, choice of institution, and usefulness of the doctorate.

CHAPTER II

A SURVEY OF THE LITERATURE

This study concerns the enabling and impeding factors operative among women in their attainment of the doctor's degree and their use of the degree. The review of literature on areas pertinent to this inquiry will concern (1) professional preparation and opportunities for women, (2) factors that are thought to enable or impede the attainment of the doctorate, and (3) factors that are thought to enable or impede the use of the doctorate.

Professional Preparation and Opportunities for Women

Trends in Doctorates Earned by Women

Although the absolute number of women earning doctor's degrees has increased steadily, the actual proportion of women among all doctoral recipients is smaller today than in the past (151). Data in Table I show that women earned the highest proportion of doctorates in 1930, accounting in that year for 15.4 percent of all doctorates. Subsequent drops in proportion to a low of 9.6 percent in 1950 have been followed by gradual increases to 11.6 percent by 1966. In the statistical report of the National Academy of Sciences (37), the proportion of women among all doctoral recipients is said to be "constant" since 1960, but Table I seems to support the "inching upward" suggested by Beach (6) due to the increased motivation of educated women to take part in the world's work.

Senders (128) speaks of the small change in proportion of women doctorates as a stable trend rather than a chance fluctuation. Although the increase in percentage of women among all doctoral recipients from 1960 to 1966 is slight (a 1.1 percent increase), the number of these women more than doubled during this period--from 1,028 to 2,118 (151).

TABLE I

NUMBER AND PERCENT DISTRIBUTION OF EARNED DOCTORATES BY SEX, FOR SELECTED YEARS, 1900-66

	Number			Percent of Total	
Year	Women	Men	Total	Women	Men
1900	23	359	382	6.0	94.0
1910	44	399	443	9.9	90.1
1920	93	522	615	15.1	84.9
1930	353	1,946	2,299	15.4	84.6
1940	429	2,861	3,290	13.0	87.0
1950	616	5,804	6,420	9.6	90.4
1960	1,028	8,801	9,829	10.5	89.5
1965	1,775	14,692	16,467	10.8	89.2
1966*	2,118	16,121	18,239	11.6	88.4

Source: Trends in Educational Attainment of Women, pp. 14-15.

*Source: Earned Degrees Conferred 1965-1966, p. 4.

The National Academy of Sciences reports that the proportion of women varies little within each summary field, but that there is marked difference among these academic fields in their ability to attract women. Recent doctorates earned about 10 percent of their degrees in the physical sciences, 16 percent in the biological sciences, 19 percent in the social sciences, 23 percent in the arts and humanities, 3 percent in professional fields, and 29 percent in education. Women account for almost one-fifth of all the doctor's degrees that are earned in education and the arts and humanities but receive only 3 percent of all physical science doctorates (37).

The time lapse between the baccalaureate and doctorate is quite substantial in every field and spreads over varying periods of time, although the work directly involving the degree extends only slightly longer than three years as a median time (159). Among the nation's recent doctorates, the median time lapse for all fields from baccalaureate to doctorate was 7.9 years for men and 11.2 years for women. Registered time, however, is about the same for men and women. The median age of men doctorates was 31.5 years and for women 35.3 years, but 30 percent of the women receive doctorates after age 40, compared with 10 percent for the men (37).

Trends in Employment of Women

For economic, personal, and social reasons, there is a remarkably high rate of employment today among mature educated women (140; 80). The direct relationships between the educational attainment of women and their role in the nation's working force is pointed out by Cohen (26) and others (148; 138).

Despite the increase and diversification in the employment of women, it is noted that there has been an almost continuous decline in the percentage of women in professional and technical occupations. Women today hold only 37 percent of these jobs, compared to 45 percent in 1940. They represent a decreasing proportion of teachers in universities and colleges, holding 22 percent of these positions in 1964 compared to 28 percent in 1940. Women have little representation among scientists (8 percent), physicians (6 percent), lawyers (3 percent), engineers (1 percent) and hold few business management positions (146; 81).

Gilles (60) and Alpenfels (2) speak of the fact that the "lady" principal is disappearing and that men as teachers in the secondary schools now outnumber women for the first time in 100 years, with a sharp decline noted from the 57 percent of 1950 to the 46 percent in 1965 (146). Men are moving into top jobs in a number of occupations that were once considered "safe" havens for women, such as teaching, library work and social work (77).

The Need for Professional Preparation

There is a growing awareness that only through higher educational achievements can women reach their full potential in social, cultural, and economic spheres (26). Projections of the large number of openings for highly trained professional people dramatize the gap that is developing between women's qualifications and the requirements of the jobs that offer the greatest scope for talent as well as for economic rewards (3). Among those who express concern over the number of able women who fail to pursue an advanced degree are Beardslee and O'Dowd (17), who see the process of such education equally as vital for women as it is for men. They are joined in this concern by Bunting (18), who points out that it is no longer possible to "finish" one's education. Riesman and Jencks (114) support the concept of women's preparation for careers. They see this preparation as functional--insurance against widowhood, having to marry, or having to stick with a bad marriage. Talented women students, they say, are still caught between old and discarded goals, and new ones yet to be discovered. Beck (3) reports that it is the woman's relevant adult education--the study and training that come after the time of her first college degree--that exerts the most telling influence on her occupational achievement. Carmichael (23) echoes this position in his report on outlets available to women in college teaching by concluding that the problem of opportunities for women seems to lie in their own preparation.

Factors That Enable or Impede Attainment of the Doctorate

If preparation is thought to be so important for women, what are the reasons that so small a proportion of women achieve high educational attainment? What are some of the factors that are thought to enable or impede women if they attempt to earn a doctor's degree? The factors of counseling, gifted women models, motivation, influence of others, changing life patterns, financial aid, proximity, institutional regulations, institutional personnel, centers for continuing education, and current attitudes towards women in the sciences will be discussed in this section. Each of these factors might be either enabling or impeding, depending upon its presence or its absence or its relative importance to each individual. What the literature has to say about these factors will be reported.

Counseling as a Factor

Not only is the proportion of women in professional and technical occupations small, but their income is also less. In 1965 only 4 percent of all women earned salaries over $7,000 compared to 30 percent for men (139). An important part of the answer to the disparity in the educational attainment and earnings of women lies in their youthful aspirations and goals. Because the growing body of literature on women has not yet become part of the cultural heritage, even those who advise and counsel with girls are too often not aware of the realities or alternatives which girls will face. The Women's Bureau predicted in 1966 that 9 out of 10 girls will work at some time during their lives (81; 143). This information is apparently not getting through to the girls themselves. Heist (74) comments that when it was proposed to college women that they might possibly be working for 20 to 30 years of their lives whether or not they married, they showed dismay and disbelief. Gass (59) concurs that girls lack awareness of the problems and contingencies they are likely to confront after they leave college. The Women's Bureau underscores the need for counseling and guidance to help make girls and women aware of the changing trends and expanding opportunities in women's lives (13; 80; 144; 149). Raushenbush (111) declares that those who educate and advise girls cannot ignore the fact that a job is likely to be a part of the life of a woman in her middle years. Action programs have been called for to dispel the concept that women must make a choice between a career and domesticity (137).

Gifted Women Models as a Factor

It is thought that the dissemination of accurate information will not in itself be enough to raise aspirations, counter stereotypes, and stir the imagination of girls and women. They also need to be acquainted with models with whom they can identify as a way of enlarging their expectations (137; 142). Unfortunately, as Drews (42) and Ginzberg (63) point out, the gifted and educated woman has few models in either the parental home or in society to encourage her to "excellence" or to help her meet changes in family situations. Muller (97) calls on our present educated women to assist in furthering the expectations that more women will pursue advanced education in the future.

Motivation as a Factor

The strongest motivation among women who earn a doctorate is thought to be simply the desire to know more and thus enjoy personal fulfillment, although expectations of increased earnings, ambition for possible recognition, or achievement of leadership no doubt play a part (52; 108; 124). In a study of mature women who were enrolled in college work, Doty (40) found that eighty percent registered unfulfilled desire for knowledge as a reason for college enrollment and fifty percent registered dissatisfaction with club work and other social and community activities. College enrollment had been a long-time plan with many of the women, awaiting only financial ability or the time when their children had reached school age; and all of the women planned to pursue careers on a full-time basis in the future. Doty concluded that it is possible for women to manipulate their environment to fit their needs, that mature women are neither frivolous nor maladjusted in their desire to attend college, and that they do intend to use their education in subsequent careers. Gass (59) comments on the dedication and commitment of women who pursue advanced education: "What men take for granted--intellectual stimulation and the right to pursue a career--many women regard as a privilege."

Influence of Others as a Factor

Gropper and Fitzpatrick (67) suggest that individual preferences may be the determining factors influencing graduate work for young women, rather than any strong pressures to choose the best possible educational and vocational plans. They report that women decide later than men to study for the doctorate and receive less family encouragement than do men. Grigg (66) found the most important factor seemed to be the student's plan to enroll in graduate work. He urges improved articulation so that high school and college students may give earlier and better-informed consideration to the possibilities of graduate and professional training.

In her study of women doctoral candidates, Field (52) found the primary influences on the decision to enter graduate school were, in order, family, high school or college teacher, self-need for intellectual challenges, and work associates or friends. Many of the married women stated that the primary influence in their decision to return to school was the encouragement and approval of their husbands, once their children were in school. The prime importance of the husband's support and favorable attitude was reported also by Gass (59).

Changing Life Patterns as a Factor

Senders (128), Eurich (48), Riesman (115), and Doty (40) point to the timing of advanced education for women. They take the realistic view that women will marry and have their children early but will be able to continue with their education while comparatively young. The fact is that about half of today's women marry by age 20 and have their last child by about age 30. Since the life expectancy for women has risen to about 75 years, a mother may expect to have 30 or 35 more years of active life, or half a lifetime still ahead of her, by the time her youngest child is well launched in school (80).

First-hand reports of the educational interests and problems of women college graduates come from surveys conducted among them seven and fifteen years after graduation by the United States Women's Bureau. Statements made by the graduates about their educational plans and needs range from firm declarations of intent to return for graduate work as soon as they could manage it to earnest appeals for more assistance in bridging the homemaking period. Early preoccupation with a family and slower progress toward the doctorate prolong the time lapse for these women. For this reason, Berelson's (9) suggestion that the less capable students may be the ones who remain in doctoral programs for a longer time is not thought to be a valid conclusion for married women with children (65).

Financial Aid as a Factor

Eckert and Stecklein (43) suggest that the dearth of financial aids for women graduate students may partly explain why only 26 percent of the academic women in Minnesota had earned their doctorates compared to 51 percent of the academic men, even though the women were on the average 6 years older than their male counterparts. Voss (155) reports that it seems to be difficult for women to receive fellowships for two reasons--the amount of time a woman can give to her studies, and her sex. Women who must pursue advanced degrees as part-time students because of family or work find that fellowships are usually reserved for full-time students. When the choice is between a man and a woman, the man usually receives the fellowship because of the presumed greater likelihood of his future worth in the field. Riesman (114) wonders if there is also an unspoken reason--that the man, in serving society, will also serve "the professor himself as a disciple."

Women who have earned the doctorate report that they experienced difficulties with financial problems (65), and women in the process of continuing their education have asked that financial aid be made available to them as part-time students. The President's Commission on the Status of Women (3), Randolph (110), Riesman (114), and others urge that the legitimacy of part-time study by women be recognized when determining eligibility for fellowships, scholarships, and loans.

Proximity as a Factor

Newcomer (102) and Doty (40) report that many women are able to continue study because of access to an institution within commuting distance. The increased numbers of colleges and universities and improved transportation help to solve the problem of proximity for some of the women whose family responsibilities or employment requirements preclude their leaving home to study for advanced degrees.

Institutional Regulations as a Factor

Institutionally upheld barriers of sex, age, full-time study versus part-time study, and pre-requisite courses contrive in varying combinations and in varying institutions to thwart or complicate enrollment of the mature woman student (70; 98; 110; 137; 140). A plea for flexibility in college regulations and in college teaching is made by Schab (125), Lyon (86), and others, so that "women who are still bringing up children can study seriously--a little at a time--toward a goal they will reach in later years" (5). The need for this flexibility is heightened by Rees (112), who emphasizes the need for a professional woman to be competent in her profession. She sees a woman able to "come out running" when she is ready to enter or to return to professional work if she has been able to achieve or maintain competence through part-time study or in other ways.

Riesman (114) remarks that a tacit form of discrimination exists among the many graduate institutions which will not allow part-time pursuit of degrees and that this is hard on married women and on working wives. The President's Commission on the Status of Women points out that the participation of mature women using educational facilities at any level is likely to be part-time. It calls upon institutions to accept part-time study plans of women in recognition of this fact (3).

Discriminatory practices operating against mature women who wish to study for the doctorate are listed by Randolph (110). To help remove these restrictions, her specific recommendations are that age should not be a factor prohibiting admission to a program, that part-time study should not only be permitted but that financial aid should also be available to a part-time student, and that institutions should adopt a more receptive frame of mind toward mature women seeking doctoral degrees.

An Institution's Personnel as a Factor

In a study of mature undergraduate women students, it was found that only a small number reported encouragement from persons associated with the educational institution they were currently attending. Regardless of their ability and intellectual potential, few of these women received any encouragement from those within the institutions to continue to professional or graduate degrees (34). Gass reports that some mature women doing graduate work have experienced problems with faculty members whose attitudes were not supportive or accepting of them as graduate students. Randolph (110), too, points out discriminatory practices which she says are due to outmoded viewpoints about women held by the faculties of too many graduate schools. In support of the mature woman student, Riesman (114) says we need to "get rid of the assumption that is so dominant in many fields that one must make one's mark by a certain age."

Jencks and Riesman (79) suggest that women should be provided with special guidance to help them make their way in the academic world. Women themselves feel this need, according to a Women's Bureau survey (147). The most frequent request of these women was for individual counseling by persons competent to advise them about their educational and employment plans. They felt that college counselors who work mostly with teenagers are often not aware of the special problems met by women with continuing family responsibilities or by those preparing to reenter the labor market at a mature age. Many of their counselors did not know of existing services that could help in solving these problems.

Centers for Continuing Education as a Factor

Some institutions are developing continuing education centers which reach out to meet the needs of women. These women seem to fall into two categories: mature women who want to continue life with a sense of accomplishment after their child-rearing tasks are essentially finished, and younger women who are already planning ahead to their own middle years. Centers whose programs for women are well-known have been developed at Rutgers (128), Radcliffe (20; 109; 128; 129), George Washington University (124), the University of Minnesota (127; 128), and at Oakland University in Michigan (28). It is estimated that at least 300 campuses in more than thirty states have educational services or continuing education programs for women (128; 141). They range from non-credit institutes or lectures to full counseling and testing programs and financial aid for both part-time and full-time graduate and undergraduate students. Whether these centers are a cause or an outcome of women's interest in higher education one cannot say, but the 1965 Census Bureau report listed 115,000 women in the thirty to thirty-four age group in college--an increase of 25,000 over the previous year.

Blackwell (16) contends that most American universities and colleges give only "lip service" to continuing education and that an interested president is the exception; however, Senders (128) feels that there are perceptible changes in the attitudes of college administrators: ten years ago continuing education programs for women were not thought of; five years ago they were novel, experimental ventures; today the absence of such a program makes an educational institution seem behind the times. Fought's doctoral thesis considers the economic, social, and psychological implications of continuing education for women and the culmination of events that have prompted this movement (56).

Current Attitudes Towards Women in the Sciences as a Factor

Erikson (47) places much of the responsibility for the present shortage of qualified women in the sciences on current attitudes among men who refuse to accept women in science. He says that women feel this prejudice, and it becomes part of their "impulse life" and "identity formation" which takes a long time to redefine. Killian (83) admits that barriers exist, but he also asserts that part of the shortage stems from a lack of interest among able women.

According to an investigation by Parrish (106), women engineers think that few women choose engineering because of "gaps" in advice, education, and information: friends and relatives actively discourage women from entering engineering; too few girls take enough high school mathematics to enroll in engineering; and there is too little current information on opportunities for women in engineering. Parrish quotes one member of the Society of Women Engineers as saying: "It's as if somebody stamped all the literature 'for men only.'" Another member observed: "In this country a woman entering engineering is in a strictly 'find and do it yourself' environment." Seaborg (126) says many fathers still assume that girls cannot excel in the sciences or that it is not quite feminine to pursue a major in the sciences or engineering. Drews (41) reminds us that differences in male and female interests are least marked at the upper end of the intellectual scale. Able females demonstrate strong interest in areas such as mathematics, science and politics, just as able men score high in interest in art, music and literature. Perhaps women will seek to develop more wide-ranging interests once cultural protocol no longer tends to limit the "acceptable" fields.

Factors That Enable or Impede Use of the Doctorate

The most recent information on use of the doctorate comes from a large-scale study by Simon (132) of the social and professional characteristics of women who attained the Ph.D. between 1958 and 1963. Its findings are based on responses from more than 3,000 of these doctorate holders, 50 percent of whom are married, with 70 percent of the married women having at least one child. Their use of the doctorate is very high. More than 96 percent of the unmarried women work full time, as do more than 87 percent of the married women without children. Among the married women with children, 60 percent work full time and 25 percent work part time. Full-time use, then, is about 82 percent; 90 percent of all respondents are working, including both full- and part-time use. Since the Simon study is recent and very comprehensive, its findings are more representative of present use of the doctorate among recipients of the last ten years than are the Berelson (9) or Parrish (105) reports, which give a much lower estimate of the use that women make of the doctorate.

Some of the factors that are thought to enable or impede women in the professional use of the doctorate are: responsibility as a mother, responsibility as a wife, personal fulfillment, mobility, marriage and the professions, women in academe, and widening opportunities for women. The extent to which any factor is enabling or impeding depends on its absence or presence or its degree of importance for each individual. What the literature has to say about these factors will be reported in this section.

Responsibility as a Mother as a Factor

A spoken or unspoken question which always arises when one considers the mother absent from home due to work or studies is whether or not the children are affected and to what extent. Studies of child-rearing practices show there is no psychological basis which keeps an achieving professional woman from still being a good mother (100; 109; 121; 161). Rossi (15; 121) does not accept the judgment that wanting more than motherhood is a reflection of individual emotional disturbance. She warns that a woman who concentrates exclusively on her children is more likely to stifle their preparation for adult life than to broaden their perspectives.

Responsibility as a Wife as a Factor

In a North Dakota conference on women, it was brought out that many of the problems of women stem from tradition relating to general male attitudes and attitudes of husbands (150). Comments on the changes needed in male attitudes have come from Bettleheim (14), Rossi (120), Freedman (58), Riesman (114), Jencks (79), and others. Both Mueller (96) and Moses (93) see the husband and wife as needing to make mutual adjustments for individual and joint desires. Moses points out that too often a husband and wife do not understand how to integrate home and outside responsibilities and that they need to remember they are competing with the environment and not with each other. Meyer (90) feels that conflict over woman's dual role is largely confined to the educated middle classes. The low income groups do not undergo such conflict and tensions because the husband accepts the situation of the actual necessity for the mother to help support the children.

Personal Fulfillment as a Factor

Berry (13), Eyde (46), Drews (42), and Fitzgerald (55) report on the satisfactions expressed by married women who work; and Homes (76) says the social and psychological aspects of employment are frequently of as much concern as the economic aspects. Gass (59) says that although outside interest may seem burdensome at times, complete involvement in the home "appears to result in an intellectual impoverishment and a stimulus deprivation which volunteer work does not overcome for many." Her viewpoint is shared by Hunt (78), Rossi (121), Park (51), Nachmias (99), Freedman (57), Drews (41), Montagu (92), and others, all of whom comment on the importance of outside interests for women.

Mobility as a Factor

Gass (59) suggests that married women, once they have achieved the doctorate, will operate under the handicap of "contingent mobility," with their movement limited by the location of their husbands' positions.

Marriage and the Professions as a Factor

One of the reasons given for lack of interest in hiring women in the professions is that the training period invested in them is wasted because they work a few years, get married, and stay home to raise their families. Bolt (21) gives little support to this reasoning, however, pointing out that men change jobs and it should make little difference from the employer's viewpoint whether an employee leaves to work for another organization or to stay home.

Women in Academe as a Factor

Rank and Tenure. In her research, Simon (130) found that the greatest difference between men and women occurs at the associate professor rank, with a smaller percentage of women than men receiving promotion above the assistant professor rank. Although the largest percentage of women hold the rank of assistant professor, single women are as likely as men to have been promoted to the rank of full professor. Among both single women and men there are from five to seven times as many full professors as there are instructors, but among married women there are more instructors than professors. Married women are also represented to a greater degree than single women or men in the categories of lecturer or research associates. The proportion of married women with tenure is about half that of single women or men (132). Simon concludes that "married women as a social category are subjected to discriminatory employment practices as manifest by rank and permanence of position" (130).

Salary. Salary comparisons between the ranks of assistant professor and associate professor were made by Simon (130). In both ranks and divisions, men earn the highest or close to the highest salaries, with married women usually earning less than unmarried women or men, suggesting again that married women in general are subjected to discriminatory practices. Salary differences between men and women, reported in earlier years to range as much as $1,289 higher for men, have decreased through the intervening years; but a $700 differential is thought to exist in favor of the academic man (132). Although the median earnings of women college teachers have increased more rapidly since 1960 than have those of men, they remain considerably lower than men's in each category (113). A very current but limited example comes from the 1967 employment survey of Oklahoma State University's placement service. The reported average salary for those who had just received the doctorate in education was $1,000 a month for men and $850 a month for women (104).

Publication. Simon (131; 132) also investigated the productivity of the respondents in her study. As far as the proportions of each who have published are concerned, the differences between men and women or between married and unmarried women are negligible; but the married women publish more articles than the unmarried women and do better than either men or unmarried women in having had a book or monograph published.

Bernard (10) suggests that a married woman's time and emotional involvement with her children may be one explanation of her lower productivity, but the findings of the Simon study are inconsistent with this premise since married women with or without children equal or surpass single women.

Academic Acceptance. Simon (132) remarks that although the overall view of the woman Ph.D. shows some differences between her and her male colleagues, these differences are relatively small and are decreasing. In general, she seems to be an accepted professional colleague. The slight reservations that remain relate to informal signs of acceptance, such as finding company for a coffee break, talking over an idea, or sharing a research interest, where the woman Ph.D. seems to have special and lower status.

Anti-Nepotism. Many academic institutions have regulations or policies interfering with the employment of more than one member of a family on the faculty or research staff or administration. Some married doctorates thus are unable to obtain positions they would like to have if their husbands are academic men (9; 10; 39; 129; 155). About 15 percent of the married women in Simon's (130) study claim to be affected adversely by anti-nepotism regulations, yet they are just as likely to be employed as the other married women. Anti-nepotism regulations, then, are not so much bars to entry to academic employment as they are restrictions to entry into specific positions at certain institutions with attendant gains in advancement, tenure, and salaries (130).

Some institutions are relaxing these restrictions. One of the large universities which recently took such a step is the University of Kansas, which now hires "without regard to family relationships," except that no one may have supervisory authority over a relative (129).

Widening Opportunities for Women as a Factor

Our society is seeing some shift in attitudes and expectations about women and work with a resulting opening of opportunity. Much of the progress of women in the past five or six years can be credited to the President's Commission on the Status of Women, established in 1961 by President Kennedy to "demolish prejudices and outmoded customs which act as barriers to the full partnership of women in our democracy" (150). As a result of the work of the Commission there has been increased and consistent interest in education, counseling and training for women (91).

Women's interests have been further served by President Johnson, who has said: ". . . a woman's place is not only in the home, but in the House, the Senate and throughout government service" (27). By 1966 the President and the Federal agencies had appointed over 700 able women to top jobs in government service in a program to eliminate the discrimination which has denied highly qualified women promotion and has denied the Federal government needed brainpower. This action serves as a showcase example to the Nation (81).

Women appointed to top government jobs have been well accepted and justify the level of confidence placed in them (25). As for men not liking to work for women, a U.S. Civil Service Commission study of the Federal work force in 1964 investigated this premise. While men preferred men in all responsible job relationships, this preference was substantially reduced among men who had had a woman boss or professional colleague and was reduced even more among those men who had had both (72).

Another area in which the Federal government has taken the lead is in initiating part-time jobs for women on the professional level. The Atomic Energy Commission now has a number of professionally trained women with college degrees on fixed half-time schedules as librarians, historians, physicists, chemists, writers, and attorneys. Two are nuclear engineers. This policy aims at eventual full-time employment of the women as their individual circumstances permit and allows the women to update and utilize their skills while providing assistance which otherwise would not have been available. It is thought that this approach by AEC may set a significant precedent for bringing professionally trained women into the Federal Service. In addition, past experience has indicated that private employers will likely follow suit in offering part-time jobs to women as a step to reentering career ranks (101).

Because of the future needs for women as professional workers Macy (87) calls equal employment opportunity for women "not a favor to women but an economic necessity." President Johnson has made the better use of the nation's womanpower a major objective of national policy: "The under-utilization of American women continues to be the most tragic and senseless waste of this century. It is a waste that we can no longer afford" (81; 141).

Summary and Critique

The preceding review of the literature reflects an insistent concern that too few able women are preparing themselves with the competencies needed to reach their full potential in social, cultural, and economic spheres. In spite of the greatly increased numbers of women who presently earn a doctor's degree, the actual proportion of women among all doctorates is smaller today than in the past. Thus, although there is widespread increase in the employment of women, their percentage in professional and technical occupations has shown an almost continuous decline because of the gap developing between their qualifications and the requirements of the jobs that offer the greatest scope for talent as well as for economic rewards.

The literature also suggests that certain factors may enable or impede women in the development and fulfillment of aspirations to pursue and achieve the doctor's degree. Some of the factors thought to be important are: counseling to inform girls and women of the realities of their lives, the influence of gifted women models, the individual's own motivations, the influence of others, recognition of the changing pattern of women's lives that finds their study time interrupted and prolonged because of attention to family concerns, financial aid and proximity to an institution, institutional regulations and attitudes that in some instances preclude or make study difficult for the part-time mature woman student, the development of continuing education centers for women, and current attitudes and expectations towards women in some of the professions.

Once the doctorate is achieved, women confront a new set of factors which may enable or impede their professional use of the degree. These include the interplay of responsibility as a mother and as a wife, the importance of personal fulfillment, the "contingent mobility" of married women, the effect of marriage on professional employment, the status of women in academe, and the widening of opportunities for women as a matter of national policy.

The literature tends to give the most emphasis to the problems attendant to earning the degree, with some focus on specific problems associated with using the doctor's degree. There are no recent empirical studies on the outcomes, usefulness, or worth of the degree except the Simon study, which is so recent that its findings are presently only partly released. Yet those women who have already earned the doctorate are in a position to influence the dimensions of higher education for women in the future. Information is needed on the extent to which present doctoral recipients have found their degrees to be of value as a means of effecting professional achievement, economic advantage, and personal fulfillment. Dissemination of this knowledge should awaken other women to these same opportunities. Similarly, enumeration of the benefits to society from the contributions of present doctoral recipients should serve to incorporate the achievement of the doctor's degree by its able women as one of the culture's generally accepted and generally expected goals. Additional inquiry is needed, then, to extend knowledge of the impact of the degree five, ten, and more years after its achievement, as well as continued attention to enabling and impeding factors operative in the attainment and use of the degree.

CHAPTER III

DESIGN OF THE STUDY

This study was designed to obtain data from the population of Oklahoma's women doctoral recipients as to the motivational and enabling or impeding factors that were important in the attainment of the doctoral degree. Descriptive personal and professional data were also gathered in the study. Some of the data are used to test hypotheses concerning time lapse in accomplishing the degree, years pursuing the doctorate, choice of institution, and usefulness of the doctorate.

To elaborate on the research design, this chapter presents a general paradigm, an interpretation of this paradigm applicable to the present study, the theoretical framework concomitant to this paradigm, and the hypotheses to be tested. It also presents the study instrument used to gather the data, the processes employed in collecting the data, and the various analyses made of the data to fulfill the purposes of the study.

Paradigms

The paradigms in Figures 1 and 2 are delineations of the forces thought to mold women's lives. What the culture expects or will accept as appropriate behaviors or activities for women limits or inhibits those aspirations or desires to develop abilities which exceed the boundary of cultural expectations of women's role.

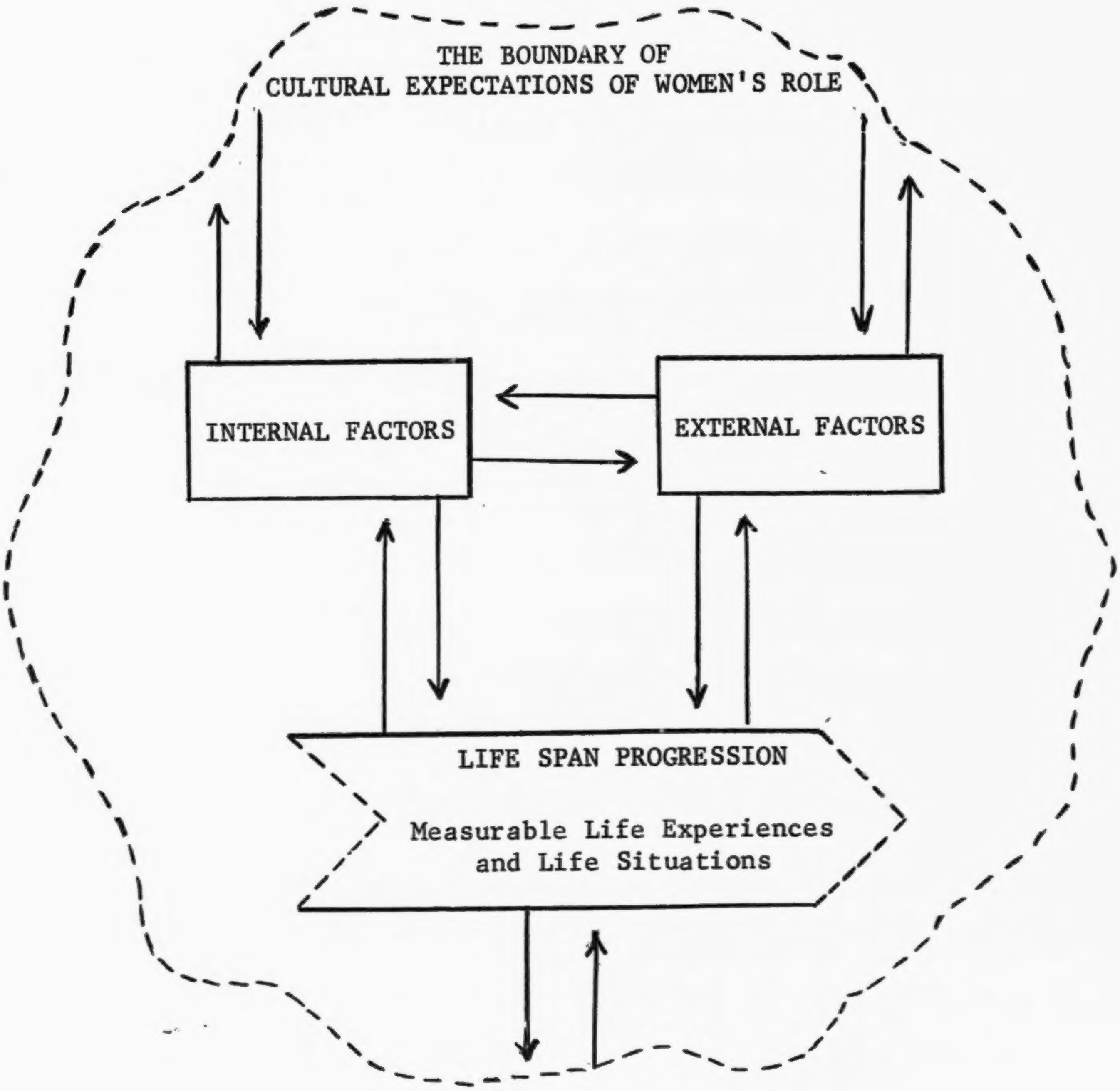
THE BOUNDARY OF
CULTURAL EXPECTATIONS OF WOMEN'S ROLE
INTERNAL FACTORS
EXTERNAL FACTORS
LIFE SPAN PROGRESSION
Measurable Life Experiences
and Life Situations

Figure 1. A General Paradigm of Forces Thought to Mold Women's Lives

Operating within the boundary of cultural expectations of women's role are an array of external and internal factors. These factors and their continuous interaction and intricate interweaving are thought to be forces that mold the measurable life experiences and life situations during any woman's life span progression.

The arrow shape chosen to represent the life span progression symbolizes the forward movement of life. The broken lines at the beginning and end of the arrow indicate that any portion of the life span progression may be examined and the measurable life experiences and life situations investigated.

The broken line and irregular shape of the boundary of cultural expectations indicate that variations in the boundary are inherent in social class, community, etc., and also occur as a function of the culture itself as customs and needs change. The boundary affects the quality and kind of internal and external factors and their effects on the life span progression. At the same time, these factors and their effects may make changes in the limits of the boundary itself.

Figure 2 is an interpretation of the paradigm applicable to the attainment of the doctor's degree, and it details some of the variables of this study. That portion of the life span progression pertinent to the attainment and use of the doctorate is investigated. The internal and external factors are the source of the descriptive data. The interactions of the various factors provide the bases for the generation of the hypotheses of the study. Three measurable life experiences are investigated through hypotheses clusters formulated concerning time lapse from bachelor's degree to doctor's degree, years pursuing the doctorate, and choice of institution. One measurable life situation is investigated through the formulation of a hypotheses cluster concerning type of employment.

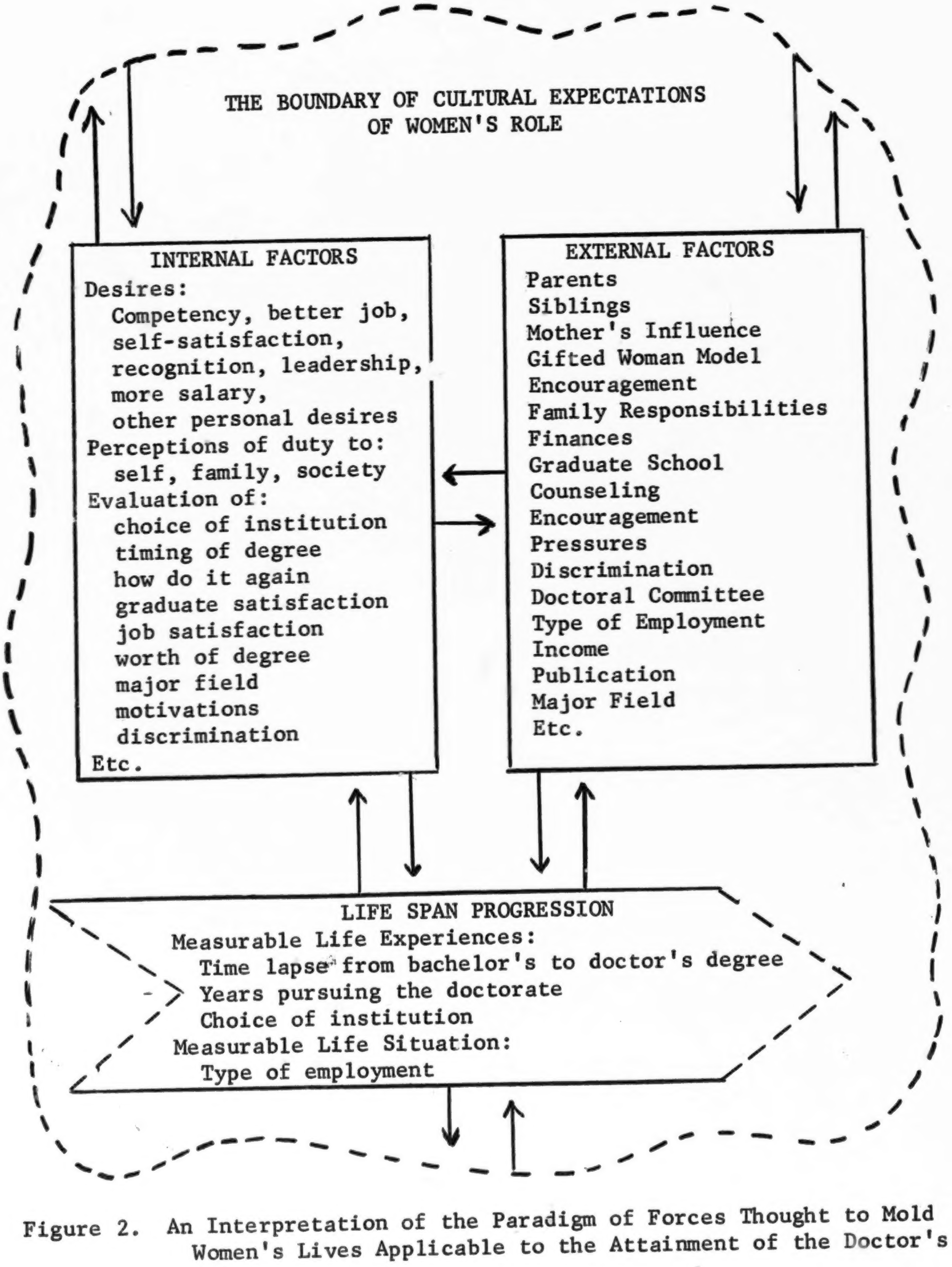
THE BOUNDARY OF CULTURAL EXPECTATIONS OF WOMEN'S ROLE
INTERNAL FACTORS
Desires:
Competency, better job, self-satisfaction, recognition, leadership, more salary, other personal desires
Perceptions of duty to:
self, family, society
Evaluation of:
choice of institution
timing of degree
how do it again
graduate satisfaction
job satisfaction
worth of degree
major field
motivations
discrimination
Etc.
EXTERNAL FACTORS
Parents
Siblings
Mother's Influence
Gifted Woman Model
Encouragement
Family Responsibilities
Finances
Graduate School
Counseling
Encouragement
Pressures
Discrimination
Doctoral Committee
Type of Employment
Income
Publication
Major Field
Etc.
LIFE SPAN PROGRESSION
Measurable Life Experiences:
Time lapse from bachelor's to doctor's degree
Years pursuing the doctorate
Choice of institution
Measurable Life Situation:
Type of employment

Figure 2. An Interpretation of the Paradigm of Forces Thought to Mold Women's Lives Applicable to the Attainment of the Doctor's Degree

Theory of the Study

The following presentation of theory and its application to this study is adapted from Nevitt Sanford's Where Colleges Fail (123).

	THEORY		APPLICATION
1.	Developmental changes in the life span progression can occur at any time in life and will depend on the strength of the challenges incurred between internal factors and external factors. If the challenge is strong enough and the life situation can be managed or controlled, the change will occur (pp. 51, 185).	1.	Among women of varying ages of maturity who attained the doctor's degree, this study will seek to identify some of the challenges which led to the achievement of the doctorate and the ways in which the life situation was managed or controlled to allow the change to occur.
2.	Once the developmental change has occurred, the life span progression is different in some respect(s) of life experience(s) and life situation (p. 50).	2.	This study will seek to analyze the new life experience and life situation in terms of worth of the degree, its uses, and satisfactions.
3.	The life span progression is again subject to the development of new challenges (p. 50).	3.	This study, through the descriptive comments of the women, will detail some of the new challenges that are being met in their lives.

Figure 3. Theory of the Forces That Mold Women's Lives

The Study Hypotheses

The study hypotheses inquire into the differences between women who do not exceed the median time lapse from the bachelor's degree to the achievement of the doctorate and those who do exceed the median time lapse (Hypotheses Cluster A), the differences between women who do not exceed the median number of years pursuing the doctorate and those who do exceed the median number of years (Hypotheses Cluster B), the differences between women who consider the choice of a doctoral institution to have been a first choice and those who consider the choice to have been dictated by some circumstance (Hypotheses Cluster C), and the differences associated with the type of present employment of these women (Hypotheses Cluster D). The variables to be investigated are set forth in the hypotheses.

Hypotheses Cluster A

There is no relationship between time lapse from the bachelor's degree to the doctor's degree and . . .

(1) the source of motivation.
(2) the extent of encouragement by those who advised the women.
(3) family responsibilities.
(4) income loss due to time out for doctoral study.
(5) the cost of acquiring the doctorate.
(6) the importance of the proximity of the doctoral institution.
(7) the length of time used in achieving the degree.
(8) hindsight evaluation of timing of degree.

Hypotheses Cluster B

There is no relationship between years pursuing the doctorate and . . .

(9) the source of motivation.

(10) the extent of encouragement by those who advised the women.

(11) family responsibilities.

(12) income loss due to time out for doctoral study.

(13) the cost of acquiring the doctorate.

(14) the importance of the proximity of the doctoral institution.

(15) hindsight evaluation of timing of the degree.

Hypotheses Cluster C

There is no relationship between choice of doctoral institution and . . .

(16) the importance of the proximity of the doctoral institution.

(17) the cost of acquiring the doctorate.

(18) whether the recipient pursued first choice of major.

(19) over-all graduate school satisfaction.

(20) job satisfaction.

Hypotheses Cluster D

There is no relationship between the type of present employment and . . .

(21) type of major.

(22) over-all graduate school satisfaction.

(23) extent of publication.

(24) job satisfaction.

(25) income appreciation.

The Study Instrument

The study instrument formulated to gather the data for this study was a questionnaire developed from a review of the literature from 1956 to 1966 and through consultation with Oklahoma State University faculty members. Ideas on items were also gleaned from the Alciatore (1) study instrument, the Goodwin (65) study instrument, the Grigg (66) study instrument, and the Radcliffe (108) study instrument. The questionnaire was revised and refined through try-outs with women doctorate holders and aspirants.

The questionnaire was a printed four-page, 8½ by 11 inch leaflet. It was unsigned and no code was kept for identification purposes, thus preserving the anonymity of the respondents. Items included both check-mark responses and free responses covering seven areas: personal data, educational data, marital data, motivational data, graduate experience, professional data, and income effects. The conclusion invited a free response concerning changes in the respondent's life due to having achieved the doctorate.

Collection of the Data

The final list of the 224 women who are thought to comprise the population of women who have earned a doctorate at an Oklahoma institution of higher education was obtained from sources at the respective institutions. The University of Tulsa, through the Graduate Office, furnished a list of its women doctoral recipients complete with addresses. To obtain a list of women doctoral recipients from both Oklahoma State University and the University of Oklahoma it was necessary to consult the official commencement programs for each of the commencement ceremonies from the time the respective institutions began awarding the degrees through the summer commencement time of 1967. The shelf holdings of commencement programs of the Oklahoma State University library were consulted to compile the list of women who had earned a doctorate at that institution, and the file of programs in the University of Oklahoma Graduate Office was consulted to compile its roster of women doctoral recipients. In spite of careful scrutiny it is possible that the name of a woman doctoral recipient may have been overlooked in this manner or that a name as printed in the program may not have been recognized as feminine. Addresses for the University of Oklahoma graduates were furnished by the personnel of the alumni office there; addresses for graduates of Oklahoma State University came from the Alumni Directory and from personal inquiry on the campus.

Of the 224 women identified as having earned a doctorate at one of the three institutions, five were known to be deceased, two were of such age and health as not to be able to answer the questionnaire, two women were overseas in India and Nepal, three women were not contacted because addresses for them could not be established, and four women were not contacted because mailings to them were returned as undeliverable. No different addresses for these four women could be located. With this total of 16 women known not to have been contacted, the assumed number of contacts with the population was 208.

The original mailing and the first follow-up mailing included an explanatory letter from Norman N. Durham, Dean of the Graduate College, together with the questionnaire, a stamped return envelope, and a stamped return postcard. The signed postcard, returned separately by the respondents, preserved the anonymity of the questionnaire, reduced the number of follow-up inquiries, and provided a list of correct addresses for distribution of a summary of the findings to the participants of the study. The second follow-up included another questionnaire and a progress report letter.

The timetable for mailings of the original and follow-up material was as follows:

(1) Original inquiry mailing, February 20, 1968.

(2) First follow-up letter, April 16, 1968.

(3) Second follow-up letter, May 10, 1968.

Returns on this questionnaire amounted to 177 replies of the 208 women thought to have been contacted. This is an 85 percent response (85.09). The percentage of returns and non-returns is reported in Table II.

TABLE II

DISTRIBUTION OF THE POPULATION BY RETURNS AND NON-RETURNS TO THE SURVEY INSTRUMENT

Category	Number	Percent Total (N = 224)	Percent Contacted (N = 208)
Total persons in the population	224	100.0	-
Known to be deceased	5	2.2	-
Unable to reply	2	.9	-
Overseas	2	.9	-
"Lost," no address located	3	1.3	-
Returned by post office	4	1.8	-
Population members thought to have been contacted	208	92.8	100.0
Total respondents	177	79.0	85.1
Total non-respondents	31	13.8	14.1

Analysis of the Data

Almost all of the data from the questionnaires were coded and punched on IBM cards for use in computer tabulations. The descriptive data involved frequency counts, percentages, means, and medians.

The hypotheses relating to time lapse, choice of institution, and type of employment were tested by performing chi-square tests of independence. The five percent level of significance was adopted for this study.

Chi-square tables give the probability of equaling or exceeding the tabulated value of chi-square for the specified degrees of freedom. Comparison of a computed value with a chi-square distribution table enables one to judge the probability of obtaining a value as great or greater by chance. The five percent level of significance adopted means that the probability is not more than five in one hundred that an observed difference is due to chance. In this study, then, the hypothesis of no difference was rejected and it was concluded that a significant difference existed if the computed chi-square value was as great or greater than the tabulated value at the .05 level of probability.

Summary

This chapter has described the research design of the study and has presented a general paradigm and its interpretation, from which the theory of the study was drawn. The twenty-five hypotheses listed concern time lapse, years pursuing the doctorate, choice of institution, and type of employment.

The study instrument was a printed, four-page questionnaire covering seven areas: personal data, educational data, marital data, motivational data, graduate experience, professional data, and income effects. It was sent by mail to the population of women who have earned a doctorate at an Oklahoma institution of higher education.

Statistical analysis of the descriptive data involved simple computations such as frequency counts, percentages, means, and medians. The hypotheses of the study were tested by performing chi-square tests of independence.

CHAPTER IV

THE FINDINGS OF THE STUDY

The data gathered from questionnaires sent to women who had earned a doctor's degree at a university in Oklahoma cover three areas related to the purposes of this study. Findings are presented concerning personal characteristics of women doctoral recipients, motivational and enabling or impeding factors, and the use and value of the doctorate.

Personal Characteristics

To fulfill this study's purpose of increasing knowledge about the personal characteristics of women doctoral recipients, a report follows on their family background, educational experiences, marital data, and age.

Family Background

Information regarding the family background of the respondents concerns the education and occupation of the parents, and the siblings and their education.

Education of Parents. Since more than 53 percent of the respondents were born within the period of 1893 to 1920, it follows that their fathers and mothers were being educated before and around the turn of the century, during years when educational facilities were not as widely available and expectations of educational attainment were not as high as now. It was a coincidence that both the fathers and the mothers of the respondents had mean educational attainments of 11.9 years. Their level of attainment gains in importance when the "time" of the parents' life spans is considered. (See Table III.)

TABLE III

HIGHEST EDUCATIONAL ATTAINMENT OF FATHERS AND MOTHERS OF RESPONDENTS

	Father		Mother	
Highest Educational Level	Number	Percent	Number	Percent
Elementary	32	18.1	24	13.6
Some High School	54	30.5	54	30.5
High School Graduate	23	13.0	35	19.8
Some College	21	11.9	33	18.6
Bachelor's Degree	18	10.2	17	9.6
Master's Degree	12	6.8	5	2.8
Professional Degree	6	3.4	1	.6
Doctorate and Post-Doctoral	2	1.1	1	.6
No information given	9	5.1	7	4.0
	N = 177		N = 177	

Occupation of Parents. More than half (55.9 percent) of the women had fathers who were classified as white-collar workers. The "time" of the parents' life spans needs to be considered again, since among those fathers classified as blue-collar workers (39.6 percent), the percentage of farmers or farm workers (25.4 percent) was larger than any other single category of either white- or blue-collar workers. The predominance of mothers who did not work outside the home was reflected in the

71.2 percent who were classified as housewives. The mothers who were employed as white-collar workers (23.2 percent) far exceeded the few (2.3 percent) who were blue-collar workers. A few women did not furnish information as to the occupation of their parents.

Siblings. No striking pattern of family size was apparent in the number of siblings of the respondents. Among the women, 40.1 percent were from one- or two-children families, 30.5 percent from three- or four-children families, and 29.4 percent from five- through thirteen-children families. Included among the siblings of the respondents were 119 older brothers, 130 younger brothers, 95 older sisters, and 124 younger sisters. The rankings of the women among their siblings ranged from the 24 respondents who had no brothers or sisters to the respondent who was first of thirteen children.

Education of Siblings. Respect for higher education seemed generally apparent among the siblings of the respondents. Among the brothers and sisters respectively, some college work without a degree had been taken by 19.7 percent and 26.5 percent, bachelor's degrees had been earned by 19.3 percent and 23.8 percent, master's degrees by 12.0 percent and 11.9 percent, professional degrees by 1.6 percent and .5 percent, and doctorates by 5.2 percent and 1.4 percent. This left only 35.4 percent and 31.5 percent who had no college experience. In spite of the differences between them at the several educational levels, both brothers and sisters had the same mean educational attainment of 14.2 years.

Educational Experiences of the Respondents

To compare the diversities and similarities in the educational experiences of the respondents, the data provide information on the types of institutions attended, institutional transfer patterns, changes in the field of study, and the distribution of the respondents by states for their sources of education and their present use of the doctorate.

Type of Institution Attended. The dominance of public universities continued at all levels in the education of the women doctoral respondents. Among the doctor's degrees, 89.3 percent were earned at the two state universities granting this advanced degree and 10.7 percent were earned at the one private university in Oklahoma which grants this degree. Among the master's degrees, 70.1 percent were earned at public universities, compared to 6.2 percent earned in public colleges and 20.3 percent in private colleges and universities. A few (3.4 percent) women worked toward the doctorate after the bachelor's degree without earning a master's degree. Even at the bachelor's level, public universities were the source of 43.5 percent of the degrees, compared to 33.4 percent from public colleges and 21.5 percent from private institutions. Foreign countries accounted for 1.1 percent of the bachelor's degrees, and one woman jumped from the A.A. degree to the master's degree without a formal bachelor's degree.

Institutional Transfer. The women exhibited varying amounts and kinds of mobility in the institutions they attended for their degrees at the several levels. Less than one-fourth (22.0 percent) of them earned all three degrees at the same institution. Those who attended two institutions in their degree progression (44.1 percent) included 27.7 percent who transferred after the bachelor's degree, 3.4 percent who changed institutions only for the master's degree, and 13.0 percent who transferred for the doctorate. The most usual degree study pattern was that evidenced by the 33.9 percent of the women who changed institutions for each degree.

Changes in Field of Study. Only 26.6 percent of the women reported making no changes in their field of study during the bachelor's, master's, and doctor's degree progression. The women who changed fields of study often moved to a closely allied area rather than to a completely different subject field. Of the 72 percent of the women who made field changes at some time, 22.0 percent changed after the bachelor's degree, 22.0 percent changed for the doctorate, 1.7 percent changed at the master's level only, and 26.6 percent changed fields for each degree, the most frequent change pattern.

Distribution of Respondents by State. The doctorate apparently increased the mobility of the women who share the bond of having earned their doctorate at a university in Oklahoma. Although foreign countries and states other than Oklahoma were the location of high school graduation, the bachelor's degree, and the master's degree for only 40 percent of the women, at the time of the study almost 60 percent resided outside Oklahoma in 35 states and Puerto Rico. In all, these women represented 42 states, Puerto Rico, and three foreign countries in their education experiences and in their 1968 residence as they used the doctorate. (See Table IV.)

Marital Data

Information gathered in regard to marital data included the percent of women doctorates who had married, the education and occupation of

TABLE IV

DISTRIBUTION OF RESPONDENTS BY STATE OF HIGH SCHOOL GRADUATION, BACHELOR'S DEGREE, MASTER'S DEGREE, AND 1968 RESIDENCE

State	High School	Bachelor's	Master's	Residence	State	High School	Bachelor's	Master's	Residence
Alabama	1	1	0	1	Nevada	1	1	0	0
Alaska	0	0	1	1	New Hampshire	1	1	0	1
Arizona	0	0	0	3	New Jersey	2	0	0	2
Arkansas	6	6	4	4	New Mexico	1	0	0	2
California	1	3	5	9	New York	1	2	9	2
Colorado	0	2	4	3	North Carolina	1	0	0	2
Connecticut	0	0	0	0	North Dakota	0	0	0	0
Delaware	0	0	0	0	Ohio	1	1	0	3
District of Columbia	0	0	1	1	Oklahoma	103	104	100	73
Florida	0	0	0	5	Oregon	1	1	1	0
Georgia	4	3	2	5	Pennsylvania	4	3	5	1
Hawaii	0	0	0	2	Rhode Island	0	0	0	0
Idaho	0	0	0	1	South Carolina	1	1	0	1
Illinois	3	2	8	3	South Dakota	0	0	0	0
Indiana	1	1	0	4	Tennessee	1	3	1	1
Iowa	1	0	2	0	Texas	13	9	7	12
Kansas	9	10	4	5	Utah	1	0	1	0
Kentucky	0	0	0	1	Vermont	0	0	0	0
Louisiana	3	3	2	8	Virginia	0	2	0	2
Maine	0	0	0	0	Washington	0	0	0	1
Maryland	1	1	1	4	West Virginia	0	0	0	1
Massachusetts	0	1	0	0	Wisconsin	0	1	1	1
Michigan	1	1	7	1	Wyoming	0	0	0	0
Minnesota	1	1	0	1	Puerto Rico	1	1	0	1
Mississippi	2	2	1	2	Foreign Country	3	3	0	0
Missouri	2	4	1	7	Not listed	3	1	6	0
Montana	0	0	0	0					
Nebraska	2	2	3	0	Number of States	29	28	23	36

their husbands, and the number and ages of their children. This material follows in several sections.

Marital Status of the Respondents. Among the respondents, the percentage of women who had married by the time of earning the doctorate was greater than reported in several other recent studies. Where Field (52) reported 39 percent of the women to have been married, Simon (132) reported 50 percent, and Goodwin (65) reported 57 percent, it was found in this study that 63.8 percent of the women had been married by the time the degree was earned. Additional marriages brought the total percentage of women who had been married at the time of the study to 67.2 percent.

Education of Husbands. High educational attainment by the husband seemed to be *de rigueur* for a married woman to attain a doctorate or for a woman to marry after earning the degree. About 32 percent of the husbands held the doctorate and 6 percent held a professional degree. The master's degree had been earned by 17 percent and the bachelor's degree by 22 percent of the husbands. This left only about one-fifth of the husbands who had less than a bachelor's degree. Among all husbands, the mean educational attainment was 16.6 years.

The choice of potential husbands seemed to be restricted for unmarried women doctorates. According to the comment of one respondent, attaining the degree limited "one's choice of a husband to someone of equal status."

Occupation of Husbands. From the high educational attainment of the husbands it followed that almost all (94 percent) of them would be white-collar workers. Most of the men with doctorates were college or university professors (21 percent) or specialists in industry (12 percent). Additional occupational distribution among the husbands included 20 percent managers, 18 percent independent businessmen, 10 percent public school teachers or administrators, 7 percent professional men, 4 percent clerical or sales workers, and 3 percent clergymen. The 5 percent of the husbands who were blue-collar workers were craftsmen, foremen, or farmers.

Children. The 74 women who had children by the time of earning the doctorate represented 65.6 percent of the married women respondents or 41.8 percent of all respondents. Only one woman had as many as 5 children, five women had 4 children each, seventeen women had 3 children, thirty-one women had 2 children, and twenty women had only one child each. The ages of the children ranged from one year to 39 years at the time their mothers received the doctorate. The median age for all children was 16.8 years, indicating that as many women with children at home were successful in achieving the doctorate as those whose children were more likely to be gone from the home or at least quite independent in terms of care needed.

Age of the Respondents

Data as to the ages of the respondents are presented by age and year of degree, median age, and mean age.

Age and Year of Degree. Age does not seem to limit quest for knowledge or ability to succeed, for the youngest respondents were three women who earned the doctorate at 26 years of age, and the oldest respondent was one who earned the doctorate at age 62. The median age for all the respondents was 42.0 years. However, since 1956 a definite trend seems to have developed for increasing percentages of degrees to be earned by women 35 and under. (See Table V.)

TABLE V

DISTRIBUTION OF RESPONDENTS BY AGE AT DOCTORATE AND YEAR OF DOCTORATE

Age at Degree	Year of Degree 1935-1940	1941-1945	1946-1950	1951-1955	1956-1960	1961-1965	1966-1967	Total
26-30	1	0	0	0	5	9	9	24
31-35	0	0	0	1	5	11	14	31
36-40	0	0	3	4	4	9	6	26
41-45	1	1	0	3	4	14	10	33
46-50	3	0	0	3	6	4	8	24
51-55	1	1	0	3	6	10	5	26
56-60	0	0	0	2	0	5	3	10
61-65	0	0	0	0	0	1	0	1
Unknown	0	0	0	1	0	1	0	2
Total	6	2	3	17	30	64	55	177

A recent study of doctoral recipients reported that among doctorates for 1966, 30 percent of the women received doctorates after age 40, compared with 10 percent of the men; and the median age at the doctorate was 35 for women compared with 31 for men (37). The present study found 38 percent of Oklahoma's women doctorates of 1966 to have received their degrees after age 40, although the median age of 35 was the same as that of the national study.

Mean Age of the Respondents and Certain Comparisons. The mean age for 175 of the women doctoral recipients (two women did not provide information about their ages) was computed to be 41.8 years, which compared closely to the median age of 42.0 years. Other comparisons appear in Table VI, with the women grouped according to whether they earned the Ed.D. degree or the Ph.D. degree, and by marital status and children. The Ed.D. degree was earned by 103 (58.2 percent) of the respondents and the Ph.D. by 74 (41.8 percent). Each Ed.D. grouping according to marital status and children was older than the comparable Ph.D. grouping. The literature suggests this is because those in education usually gain on-the-job experience before continuing advanced degrees. Married women without children had the youngest mean ages in their respective degree groups and showed the greatest difference between the two doctorates in mean ages (7.4 years). Not only did these women have the advantage of support from husbands in many cases, but they also did not have to share their time with care of children. Married women with children had the oldest mean ages in their respective degree groups and showed less difference between the two doctorates in mean ages (3.6 years). For them, the sharing of time and effort with family responsibilities apparently either slowed the educational process or delayed the time when they felt they could begin the degree.

TABLE VI

MEAN AGE OF RESPONDENTS BY DEGREE, MARITAL STATUS, AND CHILDREN AT THE DOCTORATE

	Ed.D.		Ph.D.		Total	
Category	N	Mean Age	N	Mean Age	N	Mean Age
Unmarried	37	44.0	27	38.5	64	41.7
Married, with children	41	45.3	33	41.7	74	43.7
Married, no children	23*	41.0	14	33.6	37	38.2
Total	101	43.9	74	39.0	175	41.8

*Two respondents in this category did not give their birth year and are not included in the data.

Motivational and Enabling or Impeding Factors

For the purpose of increasing knowledge as to the factors that motivate and enable women to enter the doctoral program, the findings of this study report on influences from the culture, personal reasons for pursuing the doctorate, possible delaying factors, and graduate experience data.

Influences From the Culture

Because some of the literature suggests that too few able women find inspiration for excellence or come into contact with gifted women models in either the home or in the culture, an attempt was made to discover to what extent the women doctoral recipients had internalized values or goals directed toward achieving the doctorate which might have derived from the home or the culture.

Influence of Mother. The influence of the mother seemed to be fairly important, for a large proportion (72.9 percent) of the women acknowledged that their own educational or occupational goals had been influenced by their mothers' occupations or attitudes toward education. The explanations of these respondents indicated the nature of the influence to have varied. Nevertheless, all showed the marked effort by the mothers to instill in their daughters an appreciation of the value of education which is seen in these replies:

> She made me realize her limited occupational abilities with only a high school education.
>
> She felt that all women should be able to make a living for themselves, and that the better educated a woman is, the better mother and wife she is.
>
> Education was her number one value in life.
>
> My mother was a college graduate and instilled in me the value of an education.

The insistence on education reflected in the foregoing replies is absent in the remarks of the 19.8 percent of the women who did not give their mothers credit for helping set educational or occupational goals. Nevertheless, the mothers of almost all of these women were sympathetic to their goals and supported them in their efforts, as indicated by these comments:

> She encouraged me to do what I wanted.
>
> She was encouraging and loaned me some money at the time.

Only three of the women reported that their mothers had negative attitudes, and these were directed toward education beyond high school. A few of the respondents (3.4 percent) did not answer this question, and a few (3.9 percent) were not sure of the amount of influence exercised by their mothers.

Gifted Woman Model. The lack of gifted woman models in the culture, as reported in the literature, was underlined in this study. Only forty (22.6 percent) of the women indicated that they had, indeed, come into contact with a gifted woman whom they held to be a model in their desire to achieve the doctorate. The identification of these gifted woman models, which some respondents volunteered, included relatives, women professors, and internationally known women.

Source of Idea. Another indication of the lack of the culture to provide the expectation that able women might well aspire to achieving a doctorate was the finding that more than half (54.2 percent) of the women reported that the original idea to study for the doctorate was their own. If the culture expected more of its able women, most of these women should have been challenged at various early stages in their educational experience to achieve the doctorate. Instead, only 28.2 percent stated that the original idea came as a suggestion or as advice from someone else, and 17.0 percent accorded equal emphasis to the idea as being both their own and suggested to them, making a total of only 45.2 percent of the women who received suggestions from others which helped them consider aspiring to the doctorate. Professors were the most frequent source of suggestion and were listed by 14.9 percent of the women, administrators by 11.9 percent, and husbands by 7.3 percent. Parents (1.7 percent), colleagues (1.1 percent), and miscellaneous or multiple sources accounted for the remainder of the suggestions.

Encouragement. The women were warmly encouraged in their aspirations to achieve the doctorate as they received counsel from others in making the decision to pursue the doctorate. Among parents, husbands, siblings, friends, colleagues, employers, professors, and others, the respondents recorded 864 instances of encouragement, 194 instances of neutrality, and only 80 instances of discouragement. Professors were named as the most frequent source of encouragement, with 135 reported instances. Colleagues were named as the most frequent source of discouragement, with 17 such instances reported.

Personal Reasons for Pursuing the Doctorate

Almost every woman marked several reasons for pursuing the doctorate, and some utilized the space provided in the questionnaire to add other reasons. As can be seen in Table VII, the leading choices were "to satisfy self-goals" and "to improve competency." The sincerity of purpose of the women doctorates was apparent in their added "other" reasons, such as:

> I always like to meet the needs of my assignment. It was announced our college needed more doctorates.
>
> Security measure in case it was needed. This planning was security giving when my husband had a heart attack . . .
>
> I began work on a master's degree to qualify as a Junior College teacher, and then found in the education process a form of happiness which I had not anticipated--so I continued for more, since I had discovered the purpose of my mind for the first time.
>
> As a faculty wife, I cannot have tenure at _____. Many universities do not hire husband and wife. Therefore, to place myself in competitive position the doctorate was necessary.

TABLE VII

REASONS FOR PURSUING THE DOCTORATE

Reason	Reasons		Main Reason	
	Number	Percent*	Number	Percent
To satisfy self-goals	152	85.9	78	44.1
To improve competency	149	84.2	54	30.5
To qualify for better job	94	53.1	9	5.1
More salary	84	47.5	5	2.8
Desire for recognition	51	28.8	1	.5
Desire for leadership	39	22.0	0	.0
Other	52	29.4	20	11.3
No choice made	-	-	10	5.7

*Percent exceeds 100 because respondent could mark as many reasons as applied.

Possible Enabling or Impeding Factors in Achieving the Doctorate

The factors investigated as possible enabling or impeding factors in the attainment of the doctorate were loss of income, family responsibilities, and cost of the doctorate. While most of the responses to these questions seemed consistent, a few were ambivalent to the extent that additional attention in these areas might be warranted in a future study.

Income Loss. The achievement of the doctorate was seen to have been delayed in some way by 43.5 percent of the women because they could not afford to lose employment income. Their explanations conveyed the need for continued income, either for self or family support, as they progressed with their studies. The comment "I would work for nine months in order to go to school for three months" was typical of the intent of some of the answers. One woman's remark that "salaries of teachers have never permitted a person to accumulate any major reserve" would find many echoes, as would the observation "if I had been able to afford loss of income, I would probably have obtained my doctorate at least five years earlier." Some women indicated they were the sole support for their children, were having to pick up the slack occasioned by continued illness of their husbands, or were responsible for elderly parents.

More of the women (55.9 percent) reported that they did not experience delay in earning the doctorate because of the necessity reported above for continued income, and they evidenced obvious freedom from concern with finances. Their comments were typically "my husband had a most adequate salary," or "because of my husband's position, also a fellowship acquired, money was not a problem." Another woman handled the problem of loss of income by following a "realistic program of self-sacrifice from the beginning (ate beans, instead of steak)." Study for the doctorate as a joint effort with their husbands was undertaken by two wives, one of whom reported: "My husband and I both thought the doctorates for us were challenge enough to take years off from teaching." The other woman said: "We tightened out belts and went without many of the things we had formerly enjoyed."

Some of the women (10 percent) included themselves among those who did not experience delay in earning the doctorate because of loss of income, but their comments showed this position to be ambivalent. One such example was the woman who reported: "I worked my way through. It was difficult, but the doctorate was not appreciably delayed." Another replied: "Program was never delayed but was slowed down because I worked part-time to support my family while my husband was attending school . . . ." Apparently these and other women felt that working full- or part-time did not constitute delay of the degree because they were making steady progress toward its completion, even though the elapsed time for the doctorate was prolonged. Actually, it seems probable that the 10 percent of the women who made such ambivalent responses belonged with the group who were delayed because they could not afford loss of income.

Family Responsibilities. Family responsibilities were a cause of delay in achieving the doctorate for about one-third of the respondents. In six cases the illness of the husband was a delaying factor, although in one case a woman accelerated her work for the doctorate as a result of such illness. In seventeen cases the physical and financial responsibility for elderly parents was the delaying factor. Three women reported that their own work was delayed until after the completion of the husband's doctorate. More than forty women cited responsibility to their children and/or husbands as the reason for delay. Only one ambivalent response appeared to have been given to this question. Again the personal interpretation shown in the comment was that the "program was never delayed but was slowed down."

Financing the Doctorate. A large number of women reported their doctorate to have been self-financed, with the result that the cost of acquiring the doctorate was a cause of delay for 30 percent of the respondents. When all respondents were asked to explain the way in which they financed their doctoral study, 41.2 percent listed their own savings or earnings as their means of financing their study, 5.1 percent listed their husband's income as their source of finance, and one woman (.6 percent) reported help from her parents. Outside sources of financing the doctorate were listed by 38.4 percent of the women, including various combinations of fellowships, scholarships, assistantships, and grants. Interestingly, 5 women qualified for the G.I. Bill. Only 2.3 percent of the women reported that they borrowed money for their study, and 7.3 percent were supported through sabbatical leave. No answers were given by 5.1 percent of the respondents.

Hindsight Evaluation. A majority of the women did not feel the doctorate had been pursued at the best time in their lives. Asked how they would fit study for the doctorate into their lives if they were able to do it over again, only 38.4 percent of the women would start the doctorate at the same time in their lives. These women felt that their life patterns would be the same, or that they had started at optimum times in their own lives. A larger group (58.2 percent) would start the doctorate earlier in life through a change of study pattern and for a variety of reasons. Some (3.4 percent) would have studied earlier if they had been encouraged to do so or if they had been "aware" of the degree. A few (6.7 percent) would take their master's degrees earlier and would continue study after earning the master's degree. Others (9.6 percent) would seek financial aid to reach the doctorate more quickly and remarked that it would have been easier to study when younger and without a family. Many (14.7 percent) would choose earlier study to reap the benefits of the doctorate sooner and to enjoy longer productivity. A number of women (23.8 percent) gave no explanation for their response that they would start the doctorate earlier in life.

The one woman (.6 percent) who would start the doctorate later in life felt that teaching in the public schools before beginning the degree would have made her study more meaningful. Each of the two women (1.1 percent) who would not start the doctorate at all had a different reason: one felt it was not the best way to self-improvement, and one would prefer marriage and a family. Three women (1.7 percent) did not respond to this question.

Graduate Experience Data

Inquiry into the graduate experience of the women doctorates included the years spent pursuing the doctorate, time lapse from the bachelor's degree to the doctorate, the factors influencing the choice of an Oklahoma institution, whether or not the institution was a first or dictated choice, the first choice of major field, and graduate school satisfaction. The findings on these topics follow.

Years Pursuing Doctorate. The median number of years spent pursuing the doctorate was 4.8 years, with reported time spans ranging from two years to 25 years. Many of the women (47.5 percent) would use the same amount of time if they were to study for the degree again. Although not all of the women explained their answer, some stated that the time they used allowed them freedom in their study (15 percent), or that they used the minimum possible time (4 percent), or that they used the minimum time under the circumstances (14 percent). A number of women (45.8 percent) would use less time if they were to do their study over. Some (3 percent) would hurry their studies so they would realize more salary or attain a better job sooner. Others (11 percent) felt their study would have been more meaningful without interruptions and would go to school full-time by borrowing, trying for financial awards, or asking for time off from work. Many (18 percent) would revise their study plans earlier than they did, try to avoid doctoral committee difficulty, and endeavor to see that the thesis did not delay them. Almost 4 percent of the women would take more time if they were to study again for the doctorate, saying that it was too big a job to work and study at the same time and that they could have used more dissertation time.

Time Lapse From Bachelor's Degree to Doctorate. Among the respondents, the median time lapse from the bachelor's degree to the doctorate was markedly longer than medians for time lapse reported in a recent national study. Where time lapse medians of 7.9 years for men and 11.2 years for women were reported among the nation's doctorates of 1964-66 (37), the comparable 1964-66 subgroup of Oklahoma's women doctoral recipients had a median time lapse of 16.8 years; and the total group had a median time lapse of 17.4 years. The range of time lapse was from 4 years to 36 years. Among the Ed.D. subgroups, the married women with children had a median time lapse of 18.5 years, married women with no children 16.0 years, and single women 20.8 years. Among the Ph.D. subgroups, the married women with children had a median time lapse of 17.0 years, married women with no children 10.5 years, and single women 14.0 years. The forces which affected the mean ages of the women in the same subgroups would have operated on time lapse also--those in education usually gain on-the-job experience before pursuing the doctorate; married women often have the financial support of their husbands to help them; and married women without children presumably have less distraction and delay in their studies than married women with children.

Factors Influencing Choice of an Oklahoma Institution. One factor, "proximity to the institution," was reported to be far more important than any other as a reason for choosing an Oklahoma doctoral institution. No doubt the importance of proximity was intertwined with necessity for continued income, family responsibility, and cost of acquiring the doctorate, as already reported. The priority accorded this and other factors can be seen in Table VIII.

TABLE VIII

FACTORS INFLUENCING RESPONDENTS TO CHOOSE AN OKLAHOMA DOCTORAL INSTITUTION

Factor	Very Important	Moderately Important
	(Percent)	(Percent)
Proximity to the institution	72.9	7.3
Cost of acquiring the doctorate	39.0	20.3
Academic reputation of department	36.2	24.9
Outstanding faculty in field	35.6	25.4
Received scholarship or fellowship	27.7	10.2
Prestige of institution	27.1	27.7
Educational and research opportunities	26.0	22.6
Had another degree there, felt at home	17.4	16.9
Could meet admission requirements	12.0	14.1
Recommended by college teachers	12.0	11.9
"Other"	19.2	1.1

Institution as First or Dictated Choice. Seventy-two women (40.7 percent) judged the choice of an Oklahoma institution of higher education to be a first choice, and 105 (59.3 percent) judged it to be a choice dictated by some circumstance. The women who felt their choice was dictated explained the circumstances as follows: 49 women said their family was nearby, 17 were employed or lived nearby, 14 could not afford to go elsewhere, 11 had parental responsibility nearby, 3 received financial aid from the institution or awards that specified the institution, one found the degree she wanted, and 10 listed "Other" reasons. Two of the more unusual "Other" reasons were:

> I received an Academic Year Institute grant to three universities: University of Chicago, University of Illinois at Urbana, Ill., and O.S.U. I chose the latter because I wanted to get away from an urban university and I wanted to see for myself what a mid-western university such as O.S.U. was like.
>
> Came to the Oklahoma institution because the man I later married was there. We had met earlier and wished to become better acquainted. Call it proximity to potential spouse.

First Choice Major Field. Almost 80 percent (77.8) of the women majored in their first choice field at their doctoral institution. Limitations for the 22.2 percent who did not follow a first choice major were of two kinds: some of the women who earned the Ed.D. degree would have preferred a Ph.D. degree if it had been offered at the institution they attended, and some of the women preferred fields that were not offered at the institution they attended. In spite of the limitations, 81.9 percent of the women would major in the same field if they were to do the doctorate over, 14.7 percent would major in a different field, and 3.4 percent were not sure what their major would be.

Major Field. Education attracted the largest percentage (47.5 percent) of the women as the major field of doctoral study. Next in order were the basic and applied sciences with 19.8 percent, psychology and social sciences with 12.4 percent, humanities and the arts with 11.9 percent, and other professional fields with 8.5 percent.

Graduate School Satisfaction. Many of the women appeared to have some reservation as to their satisfaction with the total graduate school experience. In registering the degree of satisfaction, only 39.7 percent of the women would definitely choose the same institution again and were thoroughly satisfied. A larger group, 48.9 percent, would probably choose the same institution again and were satisfied. The groups who registered dissatisfaction were smaller: 9.2 percent would probably choose some other graduate school and were somewhat dissatisfied, and 2.9 percent would definitely choose some other graduate school and were very dissatisfied. When numbers were assigned to the four degrees of satisfaction, with 1 for thoroughly satisfied, 2 for satisfied, 3 for somewhat dissatisfied, and 4 for very dissatisfied, the mean graduate school satisfaction for the women was 1.75, or between thoroughly satisfied and satisfied, with a strong leaning toward the latter. This compares to a similarly strong leaning to the category just below thoroughly satisfied found by Alciatore (1) in his study of University of Minnesota graduates.

Use and Value of the Doctorate

Gathering information on the subsequent use of the doctorate helps to assess the worth of the degree to society and to the holder of the degree. To this end, the study considers some aspects of current employment, discriminations the women have experienced, income effects attributed to the doctorate, and personal life changes related to the degree.

Some Aspects of Current Employment

The employment status of the women, the type of employment in which they are engaged, their rank or level of responsibility, their job satisfaction, and their extent of publication are reported as aspects of current employment.

Employment Status. Seven of the respondents were retired and were not included in the percentages of present employment status. Any criticism extant that women do not make use of their doctorates could be overwhelmingly refuted by the remaining 170 respondents, of whom 167 (98.2 percent) were employed full-time; 2 (1.2 percent) were employed part-time, and only one woman (.6 percent) was not employed. The two women who reported part-time employment preferred this arrangement because of their young children.

Type of Employment. Almost all of the women found their employment in education. Oklahoma's women doctorates were equally represented in both college and university employment, with 40.2 percent employed by colleges and 40.2 percent employed by universities. Other types of employment were represented by 12.4 percent of the women in public and private schools, 3.6 percent in state or federal government, 1.2 percent in industry, and 2.4 percent in self-employment. (See Table IX.)

Rank or Level of Responsibility. The number of women in college employment was equal to the number of women in university employment, and the number who held the rank of instructor was the same for both. Here the similarities ended, for the women employed at colleges were more likely to hold advanced rank or to have administrative responsibility than women employed at universities. Only 12 women employed by colleges were assistant professors, while 51 held higher ranks or administrative responsibility. Among university women, 27 were assistant professors and only 34 held higher ranks or administrative responsibility. In public and private schools the respondents were more likely

TABLE IX

TYPE OF EMPLOYMENT REPORTED BY RESPONDENTS IN 1968

		Number	Percent
Academic Employment			
Universities		68	40.2
Private university	8		
Private church university	6		
City university	2		
State university	52		
Colleges		68	40.2
Junior college	5		
Private church college	4		
Private college	7		
Private women's college	1		
State women's college	2		
State college	47		
Unidentified	2		
Public and Private Schools		21	12.4
City system level	19		
State, District level	2		
Government		6	3.6
State	3		
Federal	3		
Industry		2	1.2
Self-Employed		4	2.4
		N = 169	100.0

to hold supervisory or specialized positions than to be classroom teachers. The various ranks or responsibilities of the women can be seen in Table X.

TABLE X

RANK OR LEVEL OF RESPONSIBILITY OF 1968 EMPLOYMENT

	Colleges	Universities	Total
Higher Education			
Instructor	3	3	6
Assistant Professor	12	27	39
Associate Professor	17	19	36
Professor	19	10	29
Professor and Head (or Chairman)	9	2	11
Chairman or Head (no rank given)	6	3	9
University extension work	0	2	2
Research Associate	0	2	2
No rank given	2	0	0
Public and Private Schools			
Classroom teacher			5
Supervisor or specialized services			11
Principal			3
State or district level			2
Government			
State: Department level			3
Federal: Research and clinical			3
Industry			
Management level			2
Self-Employed			4
			N = 167

Job Satisfaction. Almost one-half (46.1 percent) of the employed women were thoroughly satisfied with their present positions and indicated they had no desire to change jobs at the present time. Over one-third (36.3 percent) were satisfied, but would consider a change in employment; 15.8 percent were somewhat dissatisfied and would change if a good opportunity appeared; and 1.8 percent were thoroughly dissatisfied. When numbers were assigned to the four degrees of satisfaction, with 1 for thoroughly satisfied, 2 for satisfied, 3 for somewhat dissatisfied, and 4 for very dissatisfied, the mean job satisfaction for the women was 1.73, or between thoroughly satisfied and satisfied, with a leaning toward the latter. This index of satisfaction compares to the index of 1.69 reported by Alciatore (1) in a similar analysis of University of Minnesota graduates.

Publication. The average Oklahoma woman doctorate had not distinguished herself through productivity in publications. Where Alciatore (1) reported 85 percent of his respondents to have published at least one article and Simon (132) reported about 60 percent of the men and women in her study to have published at least one article, only 40 percent of the women in the present study had published at least one article. Among this percentage of the respondents, the mean number of articles was 4.4. Books had been published by 7.9 percent of the women, with a mean among them of 1.5 books; monographs had been published by 11.3 percent of the women, with a mean among them of 2 monographs; and papers had been published by 32.8 percent of the women, with a mean among them of 4.9 papers. Some of the women had several kinds of publications, so that in all, only 57 percent of the women had published since receiving the doctorate.

Discrimination

The judgments of the women as to the amounts of discrimination met due to their being women ranged from none to much; the seriousness of the discriminations reported ranged from mild to severe; and the tones in which the discriminations were reported ranged from blithe to bitter.

Two-fifths (42.4 percent) of the women said they had met no discrimination since achieving the doctorate which was due to their being women. Their replies range from a succinct "none" to fuller statements about their reception as women doctorates:

> I receive every professional advantage and courtesy that anybody else receives. No complaints.
>
> None--at least, I am not aware of any discrimination. I have been pleasantly surprised with my professional progress.
>
> None--competent educators are recognized and rewarded regardless of sex.
>
> Disbelief that I am a doctor--just plain curiosity--no discrimination, respect instead.
>
> None--Although all of the other members of our department are men, they received me and my ideas warmly. We have a fine working relationship.

A slightly larger proportion (45.8 percent) of the women reported encountering discrimination since receiving their doctorates. The discriminations were of several kinds and were reported with varying degrees of feeling. Of all the women, 24.9 percent felt they had been held back in promotion or salary or both:

> Do not receive the same rate of pay for rank and assignment as men.
>
> Salary schedule lower. Comparing salaries in AAUP magazine indicates this to be true.
>
> For several years my salary was definitely lower due to the feeling that my husband was the provider, etc.
>
> Promotions go to men first.
>
> Delayed full professorship by 5 to 10 years.

An atmosphere of general discrimination was reported by 6.8 percent of the women:

> Men were always preferred. I was told I was given this appointment because they couldn't find a man meeting the qualifications needed for this particular assignment.
>
> Opportunities for advancement not as open in education for women as for men.
>
> Men are given a definite preference in hiring. However, I have been treated fairly by my colleagues.
>
> Discrimination was admitted when I came here. Though it still exists, it is not so obvious now.

The complications of nepotism with hiring, promotion, and salary had been experienced by 6.2 percent of the respondents:

> At two universities I was not allowed to apply for work because my husband also teaches.
>
> The only difficulty has been due to some colleges' hesitancy in hiring both a husband and wife on the same faculty.
>
> Due to local nepotism rules, only one family member can be tenured in one department. My position, therefore, is of a temporary nature.

Administrative positions are hard for women to attain, according to 4.5 percent of the reports:

> Job applications for certain administrative positions have been denied because of discrimination toward females, particularly positions requiring travel while on duty.
>
> Administrative jobs in my university go to men.
>
> Very difficult to receive title of supervisory or administrative position even though duties may merit such title.

Various other discriminations appeared in 3.4 percent of the answers:

> Men receive much more publicity in local newspapers.
>
> My employers are people without doctorates so you can see how they feel toward a person with one. Envy and jealousy predominate everywhere and anytime.

> I have noticed a hesitancy in hiring Ph.D.'s who are married. Employers claim they are not reliable as far as retaining one job very permanently because of husband.

Income Effects

The appraisal of income effects includes the record of 1967 earned income, the amount of total income appreciation, and the "yearly worth" of the doctorate.

1967 Earned Income. Definite economic advantages are enjoyed by most of the women who have earned the doctorate. While less than one percent of the nation's working women are thought to earn $10,000 or more a year (139), 82 percent of the women doctorates earn this amount or more. The 1967 earned incomes (including fees, royalities, summer salary, and other sources) ranged from $6,000 to $25,000 among the 158 women doctoral recipients who provided this information (Table XI). One-half of these women had an earned income of $12,000 or more in 1967, and the mean earned income was $12,070. The combined total income for 1967 among these 158 women was $1,905,500.

Total Income Appreciation. Some of the estimates of total income appreciation attributable to having earned the doctorate were astounding, ranging as high as $240,000. Those whose jobs changed radically after earning the doctorate could perhaps more easily estimate the amount of additional income they may have realized since earning the doctorate than those who returned to the same job or to similar work without showing an immediate gain in salary. Those who had held the doctorate for several years may have found it difficult to assess which subsequent gains in salary were due to the degree itself. A few new doctorates reported they could make no estimates at all. At best, figures reporting the monetary worth of the doctorate were approximations which varied widely depending on the experiences of the women. Among the 138 women who estimated their total income appreciation (Table XII), the range of appreciation was from $400 to $240,000.

TABLE XI

EARNED INCOME, ALL SOURCES, 1967

Income (To nearest thousand)	Number
$6,000	2
7,000	4
8,000	5
9,000	17
10,000	22
11,000	29
Median	
12,000	25
13,000	13
14,000	12
15,000	10
16,000	5
17,000	5
18,000	3
20,000	1
21,000	4
25,000	1

N = 158

TABLE XII

ESTIMATED TOTAL INCOME APPRECIATION ATTRIBUTED TO THE DOCTORATE

Estimated Appreciation	N	Estimated Appreciation	N	Estimated Appreciation	N
$ 400	2	8,000	4	27,000	1
700	1	8,500	1	28,000	4
900	1	9,000	3	30,000	8
1,000	3	10,000	8	35,000	2
1,200	3	11,000	3	36,000	1
1,500	3	12,000	1	40,000	3
2,000	6	13,000	1	42,000	1
2,500	2	14,000	6	44,000	1
3,000	2	15,000	5	45,000	1
3,500	2	16,000	2	48,000	1
3,800	1	17,000	2	63,000	1
4,000	13	18,000	1	70,000	2
4,500	1	20,000	2	100,000	2
5,000	9	22,000	2	120,000	1
6,000	7	24,000	3	128,000	1
6,500	1	25,000	3	156,000	1
7,000	1	26,000	1	240,000	1
				N = 138	

Obviously, the larger estimates of total income appreciation came from those who had held their degrees for a longer time, although the largest estimates did not correlate completely with the length of time the degree had been held. The median total appreciation was $10,375; however, the mean total appreciation was $19,861. The over-all total of income appreciation attributed to the doctorate was $2,740,800. Potential appreciation in income attributable to the doctor's degree is remarkable when one considers that more than one-half (55.4 percent) of the respondents earned the doctorate during 1963-1967 and have had comparatively few years to reap its benefits.

"Yearly Worth" of the Doctorate. The amount of additional income the women stated they may have realized since earning the doctorate was divided by the number of years each had held the degree to get a "yearly worth" of the doctorate for each woman. The range of yearly worth thus computed was from $100 a year to $12,000 a year. The median yearly worth was $3,600 and the mean was $3,804. The total yearly worth was $513,600 for the 135 women whose responses could be treated in this manner. The tangible benefits of the doctorate in terms of salary are real and worthwhile for a majority of its holders.

Effect of the Doctorate on Women's Lives

The responses of the women regarding the impact of the doctorate on their lives leave no doubt that its achievement is a major source of satisfaction to them. Almost all of the women responded with a paragraph or more to the invitation to comment on the changes in their lives which might be attributed to having earned the doctorate. The composite appraisal of the effects of the doctorate on their lives is based on these comments and neither excludes other respondents from having experienced the same changes nor assumes that only the changes mentioned occurred.

Residence. Effects on change of residence included moving to a new community, moving to a better dwelling, and enjoying a higher standard of living. Change of residence to a new community was reported by 35 women. Of these women, 6 made specific reference to leaving Oklahoma because of the low salaries they would have earned if they had remained. One woman reported that she and her husband chose to live in a state that does not have nepotism laws. Eleven women reported that the doctorate had made no change in their place of residence. Either they continued with their previous work, or as in the case of at least one woman: "Since we live in _____ because of my husband's occupation, my degree has nothing to do with place of residence." Sixteen of the women reported moving to a nicer dwelling, of whom four reported building a new home. Nine women commented on the higher standard of living that prevailed since they had earned the degree.

Family Relationships. Among those women who mentioned family relationships, the achievement of the doctorate was seen by most of the women as actually improving the feeling between husbands, children, siblings, and parents. Nineteen of the women reported that no harmful changes in family relationships had resulted from the doctorate, and were among the 41 women who spoke of the enthusiasm, pride, and respect shown by various members of their families:

> I get some good natured teasing from my family ("Dr. Mother").
>
> I think the relationships with family and friends were enhanced by my scholastic advancement. My husband and children were prouder of a wife and mother who was more than housewife.
>
> Much respect from my brothers and sisters.

Nevertheless, six women reported difficulties arising from achieving the doctorate. One woman's already deteriorating marriage culminated in divorce as a result of the degree; one woman reported a certain amount of conflict with her husband because of competition for her time; and another separated at least temporarily from her family to take a better job. One woman reported a gulf between her life and that of her parents because they could not understand the meaning of the doctorate, while another woman reported jealousy among relatives because of the status and material advantages she and her doctorate husband enjoyed. It was hard to determine whether the last woman to be mentioned was serious or quasi-serious when she said it was harder to communicate with her sister-in-law since attaining the degree.

Relationships With Friends and Colleagues. Relationships with friends and colleagues were not subjected to much strain as a result of achieving the doctorate. Thirty-two women mentioned either no change in friendships or increased pride and enthusiasm on the part of their friends, as well as the formation of new friendships. Only six references were made to friends who seemed to "shy away" from or to be less free with the respondents.

Thirty of the women mentioned being pleased with their relationships with their colleagues. They reported "flattering acceptance" by their colleagues, more "deference from associates," and greater respect for their opinions--"I had become a most respected sage." Thirteen women, however, reported at least temporary difficulty in relationships with colleagues and felt their colleagues resented them or did not accept them fully:

> It has been necessary to minimize my academic achievements in order to establish rapport with my colleagues.
>
> Female workers on the job seem to feel the need to justify their lack of having earned the doctorate.
>
> Male peers who have not achieved the degree often resent a woman with the degree.

Professional Opportunities. The obvious importance of the degree in opening professional opportunities, increasing status, and providing for enlarged activities was fully documented by the women. These outcomes were mentioned in 106 comments:

> The professional role has expanded phenomenally and gives promise of even more growth.

> "Doors" have opened to me constantly ever since receiving the doctorate.
>
> It has added to my prestige in the academic community. Students (and perhaps colleagues, too) assume that you know more when you have the doctorate.

The degree also appeared to be the key to additional experiences which the women welcomed, such as the increase of leadership opportunities and chances to give talks, work on committees, travel, and participate in new learning and working experiences. More than 70 women reported on such opportunities, and 20 women remarked on the security which the degree provided them. One woman's comment seemed to sum up most of these feelings:

> It was a most fortunate choice to have made because of my own security (now a widow) and because of my better placement in a job doing challenging, useful things for others with opportunity to further my own development and education.

One woman remarked on a very practical aspect of the status accorded the degree in her community: "One's credit rating is never questioned."

Honors and Responsibilities. Some of the women suggested that perhaps they had received certain honors as a result of having earned the doctorate. Of the 28 women who included mention of honors, a number reported being listed in Who's Who in American Women and other recognitions. They did not dwell on this effect of the doctorate, however, and seemed in general to be like a woman who remained unimpressed with herself in this respect: "It may be that I've been listed in a few minor biographical dictionaries as a result of completing the Ph.D."

With the honors also came increased responsibilities. The women seemed to take pride in additional responsibilities which they had earned, yet viewed them as mixed blessings in that "they decidedly give one more to live up to" and "prove to be a disadvantage in research endeavors" because of the time they involve.

Satisfaction. Without discounting the professional outcomes of the doctorate, an outstanding feature among the women was the personal satisfaction they expressed at having accomplished the doctorate. Although satisfaction was implied in all their positive statements regarding the degree, 51 of the women also mentioned the challenge of the experience and the sheer satisfaction of having achieved a goal:

> Stimulation of advanced studies was the most rewarding part of the endeavor.
>
> I have had much personal satisfaction from having completed this degree.
>
> I remember the tremendous feeling of accomplishment which I had--and still retain.

For twenty of the women, satisfaction came from feeling more competent in research, teaching, and other facets of their work: "There is a great deal of self-satisfaction in feeling that one is more competent in her work." Sixteen women attributed satisfaction to improved self-concept and increased self-confidence, while 25 women connected their personal satisfaction to the work they were doing as a result of earning the degree:

> I am working in a field which I like more than the field in which I was formerly employed.
>
> It has been satisfying to me personally and professionally.

Income. The financial advantages accruing from the doctorate were recognized and reported by 35 women. They stated simply "more money" or remarked on the ensuing higher standard of living afforded.

Advantages and Disadvantages. Four women suggested that preoccupation with the degree and career may have been responsible for their not marrying. Two of the women were not sure this was a disadvantage, but the other two were unequivocal in expressing their preference for a husband and children instead of a doctorate. Two husbands were reported to have made sacrifices in their careers in order that the couple might live in a place where both could be employed. Two women remarked that it would take a long time to make up for the amount of salary lost while studying for the doctorate. One woman expressed disappointment in the little difference earning the degree had made in her life and said she had expected more importance to be attached to it. Nine women felt the degree to be a social handicap occasionally, and one woman had been told by her husband that it was difficult to live with a "smart broad." One woman reported that her work kept her from feeling "hemmed in by the kitchen and kids," and another woman spoke of the importance to her of "an outlet" which she felt contributed to her effectiveness and satisfaction as a homemaker. Four women were pleased that the doctorate had led to funded research, and seven women enjoyed more flexible assignments and schedule. One respondent reported the advantages of the doctorate as follows: "Some advantages that I have over most working women are higher salary, flexible hours, closer to my husband's work, and no time in which to be bored."

The pride and enthusiasm among all the women as they made use of their improved competencies was more than adequately reflected in the concluding remarks of the respondent who was oldest both in age and in year of degree, a woman now in her seventies, who said: "To improve America we need to have all our women in all walks of life continue their studies to higher educational levels."

Summary

Descriptive data relating to the purposes of this study helped to establish a profile of the women doctoral recipients, presenting their personal characteristics, revealing the motivational and enabling or impeding factors in the attainment of the degree, and assessing the use and value of the doctorate to the holder and to society. Although there are wide variations, the majority findings of the data in this survey provided the following profile of the woman doctorate.

Her father was a white-collar worker, her mother a housewife; each had an educational attainment of 11.9 years. There were two or more siblings who averaged 14.2 years of education. At the time she earned the doctorate she was married to a man with almost 17 years of education who was a white-collar worker, probably a professor or a businessman. She had two children, averaging about 17 years of age; and she herself was about 42 years old. Although she received her high school education and earned her college degrees in Oklahoma, she was employed outside Oklahoma after she earned the doctorate.

She credited her mother with having helped set her educational or occupational goals, but claimed the original idea to study for the doctorate as her own idea. A great deal of encouragement for her to pursue the doctorate came from her professors, her employer, and her husband. Self-goals were her main reason for study.

She considered herself to have been impeded neither by income loss while she studied, nor by family responsibility, nor by the cost of acquiring the doctorate. Although she spent only 4.8 years pursuing the degree, her doctorate was earned 17 years after the time of earning the bachelor's degree; and if she were to study for the degree again she would begin earlier in her life. She considered proximity to the institution a very important reason for choosing an Oklahoma doctoral institution and reported that her choice was dictated by some circumstance. However, she was pleased with her graduate school experience.

She was employed full-time, either at a college or a university. If employed at a college, she was a professor; if employed at a university, she was an assistant professor. She had published, although not extensively, and had experienced some discrimination regarding rank, salary, promotion, administrative positions, and employment opportunities. She earned $12,000 or more in 1967 and considered the doctorate to be worth about $4,000 annually to her. She was satisfied with her job and was more than pleased to have earned the doctorate because of the personal satisfactions and professional advantages it afforded.

CHAPTER V

TESTS OF HYPOTHESES

The hypotheses of this study are grouped into four clusters concerning time lapse, years pursuing the doctorate, choice of institution, and type of present employment. The variables which were investigated are set forth in the hypotheses in null form statements. Those hypotheses which were rejected because a significant difference (at the .05 level of confidence) was recorded are reported by the symbol of a single asterisk (*). Those hypotheses which could have been rejected at the more rigorous .01 and .001 levels of confidence are reported by double asterisks (**) and triple asterisks (***) respectively. The response distribution tables (raw data) used in the chi-square tests may be found in the Appendix (Tables XV through XVIII), together with the tabulated chi-squares and the associated probabilities for the tests of hypotheses.

Cluster A: Time Lapse From the Bachelor's Degree to the Doctorate

In the hypotheses of Cluster A, the women who did not exceed the median time lapse of 17.4 years from the bachelor's degree to the doctorate were compared with the women who exceeded the median time lapse to see if they differed significantly on several variables.

Source of Motivation

The first hypothesis considers the relationship between time lapse and source of motivation. Stated in null form, it reads:

(1) There is no relationship between time lapse from the bachelor's degree to the doctor's degree and the source of motivation.

The three categories used to represent source of motivation were whether the original idea to study for the doctorate was the respondent's own idea, suggested by someone else, or both own idea and suggested. No significant difference was recorded and the hypothesis was accepted.

Extent of Encouragement

The second hypothesis investigates the relationship between time lapse and the amount of encouragement. Its null statement reads:

(2) There is no relationship between time lapse from the bachelor's degree to the doctor's degree and the extent of encouragement by those who advised the women.

Because of the small amount of discouragement registered, it was not possible to subdivide the statistical analysis according to source of encouragement. Therefore, the data represent the composite amounts of encouragement, neutrality, and discouragement the women received from those who advised them as they made the decision to pursue the doctorate. No significant difference was recorded and the hypothesis was accepted.

Family Responsibilities

The third hypothesis inquires into the relationship between time lapse and delay in achieving the doctorate because of family responsibilities. The null form statement of this hypothesis is:

(3) There is no relationship between time lapse from the bachelor's degree to the doctor's degree and family responsibilities.

No significant difference was recorded in delay due to this factor, and the hypothesis was accepted.

Income Loss

The fourth hypothesis considers the relationship between time lapse and whether the doctorate was delayed by not being able to afford to take time out for doctoral study because of income loss. Stated in null form, the hypothesis reads:

(4) There is no relationship between time lapse from the bachelor's degree to the doctor's degree and income loss due to time out for doctoral study.

No significant difference was recorded and the hypothesis was accepted.

Cost of the Doctorate

The fifth hypothesis explores the relationship between time lapse and delay of the doctorate due to the cost of acquiring the degree. The null form statement reads:

(5) There is no relationship between time lapse from the bachelor's degree to the doctor's degree and the cost of acquiring the doctorate.

No significant difference was recorded and the hypothesis was accepted.

Proximity to the Doctoral Institution

The importance of proximity to the doctoral institution and its relationship to time lapse is investigated in the sixth hypothesis. Its null statement reads:

> (6) There is no relationship between time lapse from the bachelor's degree to the doctor's degree and the importance of proximity to the doctoral institution.

Although the differences recorded on this variable approached significance, no significant difference could be claimed; and the hypothesis was accepted.

Length of Time Used for Degree

The seventh hypothesis inquires into the relationship between time lapse and whether or not the years pursuing the doctorate exceeded the median time span of five years. The null statement of this hypothesis is:

> (7) There is no relationship between time lapse from the bachelor's degree to the doctor's degree and the length of time used in achieving the doctorate.

No significant difference was recorded and the hypothesis was accepted.

Hindsight Evaluation

The last hypothesis of Cluster A explores the relationship between time lapse and hindsight evaluation as the women judge the timing of the doctorate in their lives. The hypothesis, stated in null form, reads:

> (8) There is no relationship between time lapse from the

> bachelor's degree to the doctor's degree and hindsight evaluation--would start the degree earlier, same schedule, later, or not at all.

Because only two women would start the degree later and only one woman would not start the degree at all, these categories could not be included in the chi-square test. Therefore, only the categories of starting the degree earlier in life or at the same time in life could be compared. A significant difference (***) was recorded and the hypothesis was rejected.

Of the women who did not exceed the median time lapse from the bachelor's degree to the doctor's degree, 44 percent would begin the degree earlier in their lives and 56 percent would begin at the same time in their lives if they were to do it over again. Of the women who exceeded the median time lapse, 81 percent would start the degree earlier and only 19 percent would begin at the same time.

Conclusions Concerning Time Lapse (Cluster A)

Among the motivational and enabling or impeding factors investigated through the hypotheses of Cluster A, no significant difference was recorded for source of motivation, extent of encouragement, family responsibilities, income loss, cost of the doctorate, proximity to the doctoral institution, or length of time used for the degree when the women were compared as to whether or not they exceeded the median time lapse of seventeen years between the bachelor's degree and the doctor's degree. Nevertheless, a significant difference was recorded in the hindsight judgment of these women. Many more of the women who exceeded the median time lapse would begin the degree earlier in life than would women who did not exceed the median time lapse. Apparently then, there was a lack of guidance, counseling, or cultural expectation, not investigated in this study, that resulted in a late start on the doctor's degree for many of the women.

Cluster B: Years Pursuing the Doctorate

In the hypotheses of Cluster B, the women who did not exceed the median of five years in pursuing the doctorate were compared with the women who exceeded the median to see if they differed significantly on several variables.

Source of Motivation

The first hypothesis of this cluster considers the relationship between years pursuing the doctorate and the source of motivation. The null form statement of this hypothesis is:

(9) There is no relationship between years pursuing the doctorate and the source of motivation.

The three categories used to represent source of motivation were whether the original idea to study for the doctorate was the respondent's own idea, suggested by someone else, or both own idea and suggested. A significant difference (**) was recorded and the hypothesis was rejected.

Among the women who did not exceed the median of five years pursuing the doctorate were 54 percent of the women who reported doctoral study as their own idea, 80 percent of the women who reported that doctoral study was first suggested to them by someone else, and 61 percent of the women for whom doctoral study was both their own idea and suggested. This study did not investigate whether those to whom doctoral study was suggested may also have been offered financial assistance and advisement that aided them in achieving the degree more quickly than women who started "on their own."

Extent of Encouragement

The purpose of the next hypothesis is to investigate the relationship between years pursuing the doctorate and the amount of encouragement. Its null statement reads:

(10) There is no relationship between years pursuing the doctorate and the extent of encouragement by those who advised the women.

The amount of discouragement registered was so small that it was not possible to subdivide the statistical analysis according to source of encouragement. Therefore, the data represent the composite amounts of encouragement, neutrality, and discouragement the women received from those who advised them as they made the decision to pursue the doctorate. No significant difference was recorded and the hypothesis was accepted.

Family Responsibilities

The eleventh hypothesis inquires into the relationship between years pursuing the doctorate and delay in achieving the doctorate because of family responsibilities. The null form statement of this hypothesis is:

(11) There is no relationship between years pursuing the doctorate and family responsibilities.

A significant difference (**) was recorded and the hypothesis was rejected.

Among the women who reported delay in achieving the doctorate due to family responsibilities, only 48 percent did not exceed the median of five years pursuing the degree. Among the women who were not delayed by family responsibilities, 72 percent did not exceed the median number of years in pursuing the degree.

Income Loss

The twelfth hypothesis considers the relationship between years pursuing the doctorate and whether the doctorate was delayed by not being able to afford to take time out for doctoral study because of income loss. Stated in null form, the hypothesis reads:

> (12) There is no relationship between years pursuing the doctorate and income loss due to time out for doctoral study.

A significant difference was recorded (***) and the hypothesis was rejected.

Only 45 percent of the women who were delayed because they could not afford income loss while studying for the doctorate did not exceed the median time of five years pursuing the degree. Among the women who reported they were not so delayed, 78 percent did not exceed the median time in achieving the degree.

Cost of the Doctorate

The thirteenth hypothesis explores the relationship between years pursuing the doctorate and delay of the doctorate due to the cost of acquiring the degree. The null form statement reads:

> (13) There is no relationship between years pursuing the

doctorate and the cost of acquiring the doctorate.

A significant difference (*) was recorded and the hypothesis was rejected.

Although the women who reported they were delayed by the cost of acquiring the doctorate were divided evenly as to whether or not they exceeded the median of five years pursuing the doctorate, only 30 percent of the women who were not delayed by cost exceeded the median years pursuing the doctorate.

Proximity to the Doctoral Institution

The importance of proximity to the doctoral institution and its relationship to years pursuing the doctorate is investigated in the fourteenth hypothesis. Its null statement reads:

(14) There is no relationship between years pursuing the doctorate and the importance of proximity to the doctoral institution.

A significant difference (**) was recorded and the hypothesis was rejected.

The median of five years pursuing the doctorate was exceeded by 44 percent of the women who considered proximity to the doctoral institution to be very important, but by only 15 percent and 16 percent respectively of those women who considered proximity to be only moderately important or not important. Among the women who judged proximity to be very important, it was not possible to tell whether those who exceeded the median years pursuing the degree could achieve the degree only because their study could conveniently be prolonged, or whether proximity tended to encourage a longer period of study.

Hindsight Evaluation

The last hypothesis of Cluster B explores the relationship between years pursuing the doctorate and hindsight evaluation as the women judge the timing of the doctorate in their lives. The hypothesis, stated in null form, reads:

> (15) There is no relationship between years pursuing the doctorate and hindsight evaluation--would start the degree earlier, same schedule, later, or not at all.

No significant difference was recorded and the hypothesis was accepted.

Conclusions Concerning Years Pursuing the Doctorate (Cluster B)

When the women who did not exceed the median of five years pursuing the doctorate were compared with the women who exceeded the median, significant differences were recorded for the source of motivation, and for the enabling or impeding factors of family responsibilities, income loss, cost of the doctorate, and proximity of the doctoral institution. No significant differences were recorded for the extent of encouragement the women received or in their hindsight judgment of the timing of the doctorate in their lives.

Cluster C: Choice of Doctoral Institution

In the hypotheses of Cluster C, the women who considered the choice of a doctoral institution to have been a first choice were compared with those who considered the choice to have been dictated by some circumstance to see if they differed significantly on several variables.

Proximity to the Doctoral Institution

The first hypothesis of this cluster asserts that choice of institution is not related to proximity to the institution. The null statement of this hypothesis is:

(16) There is no relationship between choice of doctoral institution and the importance of proximity to the doctoral institution.

A significant difference (**) was recorded and the hypothesis was rejected.

Of those who considered their choice of institution to have been a first choice, the importance of proximity to the institution was judged to be very important by 63 percent, moderately important by 12 percent, and not a factor by 25 percent. Of those who considered the choice of institution to have been dictated by some circumstance, the importance of proximity to the institution was judged to be very important by 85 percent, moderately important by 5 percent, and not a factor by 10 percent.

Cost of Acquiring the Doctorate

The seventeenth hypothesis explores the relationship between choice of institution and the importance of the cost of acquiring the doctorate. The null form statement of this hypothesis is:

(17) There is no relationship between choice of doctoral institution and the cost of acquiring the doctorate.

In the judgments of the cost of acquiring the doctorate as very important, moderately important, or not a factor, no significant difference was recorded and the hypothesis was accepted.

First Choice of Major

The eighteenth hypothesis considers choice of institution and whether or not the major field of study was a first choice field. The null statement of this hypothesis reads:

> (18) There is no relationship between choice of doctoral institution and whether the recipient pursued first choice of major.

Since a significant difference (**) was recorded for this variable, the hypothesis was rejected.

Of those who reported their choice of doctoral institution to be a first choice, 89 percent pursued a first choice major field. Of those who reported their choice of doctoral institution to be dictated by some circumstance, only 70 percent pursued a first choice major field. Apparently the other 30 percent of these women considered the doctorate worth achieving, even though some circumstance prevented their studying in their first choice field.

Graduate School Satisfaction

Whether or not over-all graduate school satisfaction is related to choice of institution was investigated in the nineteenth hypothesis. Stated in null form, the hypothesis reads:

> (19) There is no relationship between choice of doctoral institution and over-all graduate school satisfaction.

Because too few people reported being "very dissatisfied" with their graduate school experience, this category was combined with the "somewhat dissatisfied" category to make a category of "dissatisfied." The other two categories were "thoroughly satisfied" and "satisfied." A significant difference (***) was recorded and the hypothesis was rejected.

Among those who considered their choice of doctoral institution to have been a first choice, 56 percent were thoroughly satisfied, 42 percent satisfied, and 1 percent dissatisfied. Among those who reported that some circumstance dictated their choice of doctoral institution, 28 percent were thoroughly satisfied, 52 percent satisfied, and 19 percent dissatisfied.

Job Satisfaction

The final hypothesis of Cluster C inquires into whether or not choice of institution is related to job satisfaction. The null form statement of this hypothesis is:

(20) There is no relationship between choice of doctoral institution and job satisfaction.

Because too few women reported being "very dissatisfied" with their jobs, this category was combined with "somewhat dissatisfied" to make a category of "dissatisfied" as a companion category to "thoroughly satisfied" and "satisfied." No significant difference was recorded for this variable and the hypothesis was accepted.

Conclusions Concerning Choice of Institution (Cluster C)

Comparisons of the women who considered their doctoral institution to have been a first choice with those women who considered their doctoral institution choice to have been dictated by some circumstance yielded significant differences for the importance of proximity of the doctoral institution, whether the woman pursued her first choice of major, and the amount of graduate school satisfaction. The way in which women viewed their choice of institution did not seem to have any relationship to the cost of acquiring the doctorate or to subsequent job satisfaction.

Cluster D: Type of Employment

In the hypotheses of Cluster D, comparisons were made between women in university employment, women in college employment, and women in other employment (public schools, industry, government, and self-employment) to see if they differed significantly on several variables.

Type of Major

The first hypothesis to be considered from this cluster is whether or not type of employment is related to the five classifications of majors. Stated in null form, the hypothesis reads:

(21) There is no relationship between the type of present employment and type of major.

A significant difference (***) was recorded and the hypothesis was rejected.

Women in university employment were more likely to be majors in education or basic and applied sciences than in the other three fields. Women in college employment were most likely to be majors in education, with the next likely majors to be in the basic and applied sciences and arts and humanities. Women in other employment were more likely to come from education and psychology and the social sciences, with none coming from arts and humanities or the category of other professional fields.

Graduate School Satisfaction

The purpose of the twenty-second hypothesis is to explore the relationship between type of employment and graduate school satisfaction. The null statement of the hypothesis reads:

(22) There is no relationship between type of present employment and over-all graduate school satisfaction.

No significant difference was recorded and the hypothesis was accepted.

Extent of Publication

The twenty-third hypothesis investigates the relationship between employment and extent of publication. The null statement of this hypothesis reads:

(23) There is no relationship between type of present employment and the extent of publication.

No significant difference was recorded and the hypothesis was accepted.

Job Satisfaction

The purpose of the twenty-fourth hypothesis is to inquire into the relationship of type of employment and job satisfaction. The hypothesis, stated in null form, reads:

(24) There is no relationship between the type of present employment and job satisfaction.

A significant difference (*) was recorded and the hypothesis was rejected.

The women who reported they were thoroughly satisfied with their jobs included 61 percent of the women in university employment, 41 percent of the women in college employment, and 25 percent of the women in other employment. Dissatisfaction was reported by 12 percent of the women in university employment, 20 percent of the women in college employment, and 22 percent of the women in other employment. Thus, if a hierarchy could be assumed to exist ranging downward from university employment to college employment to other employment, decreasing percentages of satisfaction and increasing percentages of dissatisfaction would accompany the hierarchy.

Income

The final hypothesis of the study investigated whether type of employment was related to income. The hypothesis, stated in null form, reads:

(25) There is no relationship between the type of present employment and income appreciation.

The only definite measure of income appreciation was simply the 1967 earned income of the respondents. A significant difference (*) was recorded and the hypothesis was rejected.

The median salary of $11,500 in 1967 was earned or exceeded by 64 percent of the women in college employment, 52 percent in university employment, and 39 percent in other employment. Less than $11,500, then, was earned by 36 percent of college employed women, 48 percent of university women, and 61 percent of other women.

The greater earnings of women in college employment may well have been associated with the fact that more women in college employment held advanced rank and had administrative responsibility than women employed at universities. Women in other employment did almost as well as women in university employment in regard to earnings.

Conclusions Concerning Type of Employment (Cluster D)

Comparisons of the women as to whether they were in university employment, college employment, or other employment yielded significant differences as to their type of major, their job satisfaction, and their 1967 earned income. No significant differences appeared among the women in the different types of employment when they were compared as to their graduate school satisfaction and their extent of publication.

Summary

Findings from tests of hypotheses were reported and summarized in this chapter under four headings.

No significant differences were recorded between time lapse from the bachelor's degree to the doctorate and the motivational variables of source of motivation and extent of encouragement. Neither were significant differences recorded for the enabling or impeding factors of proximity of the doctoral institution, family responsibilities, cost of acquiring the doctorate, income loss, or years pursuing the degree. Therefore, time lapse did not seem to be related to motivational and enabling or impeding factors. However, hindsight evaluation was significantly related to time lapse in that late finishers would start earlier, while most early finishers would start at the same time in life.

When relationships between years pursuing the doctorate and variables of motivation were tested (Cluster B), a significant difference was recorded for the source of motivation but not for the extent of encouragement. In further tests of relationship between years pursuing the doctorate and enabling or impeding factors as variables, significant differences were recorded concerning family responsibilities, income loss, cost of the doctorate, and proximity of the doctoral institution. Hindsight judgment of the timing of the doctorate in their lives was not significant in difference among the women. In general, then, years pursuing the doctorate seemed to be related to most of the motivational and enabling or impeding factors.

In Cluster C the relationships between choice of doctoral institution and several variables were tested. A significant difference was recorded for proximity of the institution, for pursuing a first choice major, and for graduate school satisfaction. Cost of acquiring the doctorate did not seem to be related to the choice of institution, nor did subsequent job satisfaction.

Significant differences were found in tests of relationships between type of employment (Cluster D) and type of major, job satisfaction, and 1967 earned income. There appeared to be no relationship, however, between type of employment and either graduate school satisfaction or extent of publication.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

So few women earn a doctor's degree that its achievement is not yet one of the "visible" goals to be sought after as a part of the life of able women. Thus the culture continues to allow an injustice to be done both to women and to the nation in failing to encourage its able women to prepare themselves to fill professional and technical positions that require high level competencies. The proportion of women among all doctorate recipients is smaller than in the 1930's, and there has been little increase in this proportion since 1950 in spite of increases in the absolute number of women earning doctor's degrees.

The Literature in the Field

Projections of the large number of openings for highly trained professional people are reported in the literature and dramatize the gap that is developing between women's qualifications and the requirements that offer the greatest scope for talent as well as for economic returns. There is growing awareness of the importance of higher educational achievements if women are to reach their full potential in social, cultural, and economic spheres.

Various factors may serve to motivate, enable or impede the establishment of goals directed toward achieving the doctorate. It is suggested that counseling and guidance are needed to help make girls and women aware of changing life patterns and expanding opportunities so they will plan their lives with the facts in mind. Their expectations need to be enlarged through acquaintance with gifted women models with whom they can identify. Changing life patterns involve the recognition that women are marrying and having their children earlier, but can continue their educations a little at a time in preparation for the half a lifetime that will still be ahead of them once their youngest child is well launched in school.

There is more and more insistence that women be given financial assistance for their studies and that part-time study be recognized as legitimate in establishing eligibility for fellowships, scholarships, and loans. Institutions of higher education are being challenged to remove those restrictions which discriminate against mature women who wish to study for the doctorate, and their personnel are asked to receive these women without prejudice. Cultural attitudes which suggest that certain fields are not properly feminine are being attacked for the outmoded stereotypes they are.

Once the doctorate is achieved, new factors are thought to enable or impede women in their professional use of this degree. The culture tends to ask how the professional woman fulfills her role as a mother and a wife. Answers in the literature suggest that there is no psychological basis that keeps her from being a good mother, and that changes are needed in male attitudes so that husband and wife can compete with the environment and not with each other. The importance of personal fulfillment and outside interests for women is stressed.

Married women operate under the handicap of "contingent mobility" according to the location of the husband's position, and the point is made that employers who say that married women leave their jobs for family considerations must realize that men also leave their jobs, although for different reasons.

Single women in academe fare almost as well as men, but married women tend to be subjected to discriminatory practices in rank, tenure, and salary, as well as to barriers of anti-nepotism.

Many of the presently widening opportunities for women stem from current emphasis by the Federal government on a national policy which is designed to eliminate the prejudice that has denied highly qualified women promotion and has denied the Federal government needed brainpower.

Although the literature has a number of reports and discussions on problems attendant to achieving the doctorate, there is little published research on current use of the doctorate and its worth to the holder and to society. It is in this area that significant findings could serve to incorporate in the culture the expectation that able women will serve themselves and society through preparing themselves to function at their highest level of competence. This study extends knowledge by reporting in some detail the uses and satisfactions of the doctorate. It also adds new dimensions to knowledge of personal characteristics of women doctorates and explores the motivational and enabling or impeding factors operative in the attainment and use of the degree.

Purpose and Design of the Study

This study was designed to obtain data from the population of Oklahoma's women doctoral recipients in order to increase knowledge of the personal characteristics of women doctorates and to investigate factors thought to motivate and enable women to enter the doctoral program. It sought to gather information on the subsequent use of the doctorate so as to assess the worth of the degree to society and to the holder of the degree. By comparing some of the data from the study it was possible to test certain hypotheses relating to time lapse, years pursuing the doctorate, choice of institution, and type of present employment.

The Study Hypotheses

Four general clusters of hypotheses were formulated to test the relationship of certain motivational and enabling or impeding factors, as well as the type of use and satisfaction and worth of the degree. These general hypotheses yielded 25 specific hypotheses to be investigated.

Hypotheses Cluster A compared time lapse from the bachelor's degree to the doctor's degree with source of motivation, extent of encouragement, family responsibilities, income loss due to time out for doctoral study, the cost of acquiring the doctorate, the importance of proximity of the doctoral institution, length of time used for the doctorate, and hindsight evaluation of the time of the doctorate in life.

Hypotheses Cluster B compared years pursuing the doctorate with source of motivation, extent of encouragement, family responsibilities, income loss due to time out for doctoral study, the cost of acquiring the doctorate, the importance of proximity of the doctoral institution, and hindsight evaluation of the time of the doctorate in life.

Hypotheses Cluster C compared choice of doctoral institution with the importance of proximity to the institution, the cost of acquiring the doctorate, first choice major, graduate school satisfaction, and job satisfaction.

Hypotheses Cluster D compared type of present employment with type of major, graduate school satisfaction, job satisfaction, extent of publication, and income appreciation.

The Study Instrument

To gather the data for this study, a four-page printed questionnaire (8½ by 11 inches) was designed in the fall of 1967. It was mailed to the 208 women doctoral recipients who could be contacted (16 could not be reached because of being deceased or incompetent, or because they were overseas or no address was found). Usable questionnaires were returned by 85.1 percent of those thought to be contacted.

Analysis of the Data

Responses to the questionnaire were coded and analyzed with the aid of computer tabulations. In addition to descriptive data highlighted with means, medians, percentages and frequency counts, chi-square tests of significance were used for the tests of hypotheses.

Results of the Study

The findings of the study were summarized according to personal characteristics, motivational factors, enabling or impeding factors, and use and value of the doctorate.

Personal Characteristics

1. At the time of the degree, the women doctorates ranged in age from 26 to 62 years, with a median age of 42 years. More than 60

percent of them had married, with two-thirds of the married women having children at the time of the degree. Their husbands averaged 17 years of educational attainment and were predominantly white-collar workers.

2. The women's parents averaged just less than high school graduation in educational attainment and their siblings averaged 14 years of education. More than one-half of the fathers were white-collar workers, as were about one-fourth of the mothers. Three-fourths of the mothers were housewives.

3. Education was the major field of almost 50 percent of the women; basic and applied sciences attracted about 20 percent; and psychology and the social sciences, arts and humanities, and other professional fields accounted for about 10 percent each. Over 20 percent of the women did not major in a first choice field, either because the chosen field was not offered or because the type of degree they preferred was not offered.

4. The median time lapse from the bachelor's degree to the doctorate was about 17 years. For years pursuing [illegible] [illegible], [illegible] was about five years.

5. The women doctorates were diverse in their undergraduate and master's origins and were well dispersed over the nation in their use of the degree, with more than 60 percent presently residing outside Oklahoma.

Motivational Factors

1. Almost three-fourths of the women gave their mothers credit for helping set their educational or occupational goals. Less than one-fourth mentioned a gifted woman model as a source of motivation.

2. Advice or suggestion from others was mentioned by almost one-half of the women as an impetus to study for the degree. Source of motivation was significantly related to years pursuing the doctorate, with greater percentages of women to whom doctoral study was suggested finishing in the median number of years or less.

3. In conferring with others the women met far more encouragement than discouragement, with their professors providing the most encouragement, followed by employers and husbands.

4. Self-goals and desire for improved competency were the main reasons for pursuing the doctorate, although other more personal reasons were also listed.

Enabling or Impeding Factors

1. Family responsibility was an impeding factor for 34 percent of the women, who cited varying responsibilities to husband, children, or elderly parents. Lack of such responsibility was an enabling factor for 66 percent of the women. A significantly larger percentage of women who were not delayed by family responsibilities did not exceed the median of five years pursuing the doctorate.

2. Income loss was an impeding factor for 43 percent of the women, who needed continued income either for self or family support and thus reported the doctorate to be delayed in some way. In contrast, 56 percent of the women reported that through the husband's income or through some other source, they were not delayed because they could not afford income loss. A significant difference was found for this factor, with a larger percentage of women who were not delayed by income loss also not exceeding the median of five years pursuing the doctorate.

3. The cost of acquiring the doctorate was an impeding factor for 30 percent of the women. For the rest of the women, their ability to handle the cost of acquiring the doctorate was an enabling factor. However, a significant difference was found between the women, with a larger percentage of those who were not delayed by cost also not exceeding the median of five years pursuing the doctorate.

4. Almost three-fourths of the women checked proximity of the institution as a very important reason for choosing an Oklahoma doctoral institution. Significantly larger percentages of these women exceeded the median of five years pursuing the degree than did women who considered proximity moderately important or not a factor. Cost of acquiring the doctorate, academic reputation of the department, and outstanding faculty in the fields were registered as very important by slightly more than one-third of the women.

5. Only 40 percent of the women reported feeling that their choice of doctoral institution was a first choice. Compared with the women who felt that their choice of institution was dictated by some circumstance, significantly more of the latter group considered proximity to be very important, were less likely to have pursued their first choice major field, and registered less satisfaction with their graduate school experience. Nevertheless, 90 percent of all women registered thorough or general satisfaction with their graduate school experience.

6. According to their hindsight evaluation of the timing of the degree, 60 percent of all women would start the doctorate earlier in their lives. When compared with time lapse from the bachelor's degree to the doctor's degree, significantly more of the women who exceeded the median time lapse would start the degree earlier, while most early

finishers would start the degree at the same time if they were to do it again.

Use and Value of the Doctorate

1. Seven of the women had reached retirement age, leaving 170 women who could be expected to make professional use of the doctorate. Among them there was an almost incredible rate of 99 percent employment.

2. The 80 percent of the women who were in higher education were divided evenly between university and college employment. The remainder of the women were largely associated with public and private schools, with a small number each in industry, government, and private employment. Type of present employment was significantly related to type of major, with college employment more likely for majors in education and arts and humanities; university employment more likely for majors in basic and applied sciences and other professional fields; and the other types of employment more likely for majors in psychology and the social sciences.

3. Between women employed at universities and colleges there were differences, with women in college positions holding higher rank and having administrative responsibility with more frequency than women in university positions. Significantly more women in college employment than women in university or other types of employment exceeded the median salary, reflecting the higher ranks and administrative responsibility they had achieved.

4. Most of the women in public and private schools held supervisory or special responsibilities; few were classroom teachers. Women in industry and government also occupied special positions or were in

administrative capacities.

5. The women expressed satisfaction with their jobs, with women in university employment expressing significantly more satisfaction than women in college or other type employment. Among the women, almost 50 percent felt they had experienced discrimination regarding rank, salary, promotion, administrative positions, and employment opportunities.

6. Almost without exception the women attested to their satisfaction with having earned the doctorate. They mentioned a variety of effects on their lives due to the doctorate, with far more advantages than disadvantages reported concerning residence, status and honors, professional opportunities, income, and relationships with family, friends, and colleagues.

Findings on the Theory of the Study

The articulation of the theory of the study and its application were an outgrowth of the development of the "Paradigm of the Forces Thought to Mold Women's Lives" and its interpretation in regard to the attainment of the doctor's degree. In this assessment of the outcomes of the theory of the study, each part of the theory is restated, together with its application pertaining to this study. Support for each of the parts of the theory is drawn from information which is reported in more detail in the findings of the study.

The First Part

The first part of the theory states that developmental changes in the life span progression can occur at any time in life and depend on the strength of the challenges incurred between internal and external factors. If the challenge is strong enough and the life situation can be managed or controlled, the change will occur. The application of this theory was to show the varying ages of maturity among the women who attained the doctor's degree, and to identify the challenges which, in the perception of the women, led to the achievement of the doctorate, as well as the ways in which the life situation was managed or controlled to allow the change to occur.

The youngest women doctoral recipients were 26 years of age; the oldest recipient was 62. The recent years which show 10 or more recipients are characterized by a range of 25 years or more in the age of the recipients. Among able women, then, the younger ones demonstrate that they have enough maturity for successful completion of the doctorate, and the older ones demonstrate that they retain the competence necessary to achieve the doctorate.

The challenges perceived by the women included the values related to advanced education instilled in them by their mothers; the contacts which some of the women had with gifted women models; the suggestions to undertake doctoral study which came from others; the great amount of encouragement extended those women who sought counsel from others; and their personal aspirations to satisfy certain self-goals, to improve competency, and to attain better jobs, more salary, leadership, recognition, and other goals of unique personal origin.

The life situations were managed or controlled according to the needs involved: continuing to work and prolonging the degree through part-time study when income had to be earned without interruption; delaying or interrupting study when family responsibilites had to take precedence; financing the degree through savings, graduate financial assistance, or other means; commuting the sometimes long distances involved in meeting classes; and finishing the dissertation when back on the job, in many instances. Amounts and kinds of difficulties in the life situation varied with the individuals. Some women reported planning ahead and following their plan with no problems whatever.

The Second Part

The second part of the theory of this study declares that once the developmental change has occurred the life span progression is different in some respect(s) of life experiences and life situation. The application of this theory was to analyze the new life situation in terms of worth of the degree, its uses, and satisfactions.

Several measures reported the worth of the doctorate. The 1967 earned income of the women ranged from $6,000 to $25,000, with a mean of slightly more than $12,000 and with half of the women earning $12,000 or more. The combined total income of these women was almost $2,000,000. As another measure of the worth of the doctorate, the estimate of additional income that would not have been realized without the degree ranged from $400 to $240,000. The over-all total of this measure was almost $3,000,000.

More than 99 percent of the women were making professional use of the degree, with 98 percent employed full-time. Over 80 percent of the women were in college and university employment, with the remainder in public and private schools, government, industry, and self-employment. Almost 60 percent of the women had published since earning the doctorate.

Among satisfactions associated with the doctorate, more than 80 percent of the women were satisfied with their jobs. Numerous effects on their lives were attributed to the degree; and far more advantages than disadvantages were reported concerning residence, status and honors, professional opportunities, income, and relationships with family, friends, and colleagues. Almost without exception the women attested to their satisfaction with having earned the doctorate.

The Third Part

The third part of the theory of this study states that the life span progression is again subject to the development of new challenges. The application of this theory was to detail, through the descriptive comments of the women, some of the new challenges that are being met in their lives.

The women reported new challenges of many kinds: family relationships to resolve, more respect to live up to, new friendships to develop, feelings of jealousy and non-acceptance by colleagues to overcome, and changes in professional position, including promotion and attendant increase in responsibilities, new positions that both please and challenge, and enlarged professional opportunities. In support of the theory and its application, some of the descriptive comments of the women follow:

> Limited time to spend in the home; conflict with husband.
>
> So much more is expected of one.
>
> It has been necessary to minimize my academic achievements in order to establish rapport with my colleagues.
>
> I am able to use my academic training to best advantage in a growing field where I am one of the relatively few experts.

> I do a lot of writing and speaking to live up to the obligations of a relatively new role.
>
> It has multiplied my responsibilities.
>
> 'Doors' have opened to me constantly every since my receiving the doctorate.
>
> The professional role has expanded phenomenally and gives promise of even more growth.

Conclusions

1. The investment of society in the preparation of women doctorates is well repaid.

The return to society of 99 percent employment among these women is very high. Although the women were concentrated in higher education, society was also being served by these women in public and private schools, in industry and government, and through the self-employment of these women.

2. The investment by women of the time and effort expended in the attainment of the doctorate is of worth to them.

Almost without exception, the women expressed their professional and personal satisfaction with the attainment of the degree. In addition, their 1967 salaries and the accumulated salary appreciation attributed to the doctorate were convincing evidence of the financial worth of the degree to them.

3. Oklahoma's women doctoral recipients serve not only Oklahoma but also the nation.

At the time of this study, almost 60 percent of the respondents resided and were employed outside of Oklahoma. Thus other areas throughout the nation were being served, even as Oklahoma was being served by its women doctoral recipients. It would appear, therefore, that any national or federal support of graduate education for women would be as warranted as is state support.

4. Apparently, the lack of guidance, counseling, or cultural expectations results in too late a start on the doctor's degree for many women.

More than 60 percent of all women in this study, and over 80 percent of those who exceeded the median time lapse from the bachelor's degree to the doctor's degree, indicated they would begin their doctoral study earlier in their lives if they were to do it again. It follows, then, that in retrospect they were able to see ways in which they could have managed their lives so as to have achieved the degree at an earlier time. Greater cultural expectations regarding women doctorates and improvement of guidance and counseling may encourage women to earn the doctor's degree at earlier times in their lives so as to realize greater gains for themselves and for society.

5. Women could accomplish the degree in less time if aided financially.

Both income loss and delay due to the cost of acquiring the doctorate were significantly related to years pursuing the doctorate. In addition, the likelihood exists that some delays due to family responsibilities are associated with finances. Therefore, to the extent that inadequate finances now prolong the years pursuing the doctorate, increased financial aid for women would lessen the time required to accomplish the degree.

Recommendations and Suggestions for Further Study

A few recommendations concerning women doctorates and the cultural ambience follow, as well as some suggestions of areas for extending research on women and the doctorate.

Recommendations Concerning Women Doctorates and the Culture

1. The highly satisfactory outcomes of the attainment of doctoral degrees by women found in this study should be widely publicized for these purposes:

    a. An unremitting effort must be made to apprise society of the value it receives from its women doctorates. Such an effort is needed to make an impact on the culture in what it accepts and expects of its able women in order to create an ambience conducive to the attainment of the doctorate by more women.

    b. A companion effort must be made to apprise able women of the potential worth to them of the doctor's degree. The efforts to identify young girls with special aptitudes and to encourage them to study and prepare for careers, as suggested by the National Institutes of Health and by various publications of the Women's Bureau, will be aided immeasurably by affording girls and women empirical findings as to the effects of the degree in the lives of women. Potential women doctorates need to know of the satisfactions expressed by gifted women models, to be aware of the financial rewards associated with the doctorate, and to see how the functions of career, wife, and mother can be integrated.

2. The efforts to encourage women to pursue advanced degrees now being expended in professional literature need to be extended to current popular literature--women's magazines, newspapers, and news magazines--to bring this information more quickly to the fore.

3. The efforts to achieve a more equitable reception for women graduate students, which are being encouraged through individual research, doctoral studies, and some continuing education centers for women, need to be supported by powerful blocs if more immediate and conclusive results are to be achieved.

The work of the President's Commission on the Status of Women, the policy of the Federal Services to eliminate discrimination in the utilization of womanpower, and the innovation of the National Atomic Energy Commission in making part-time jobs available to professional women are tremendous forces in recognition of the need for women's abilities. The recently published Special Report on Women and Graduate Study, by the National Institutes of Health of the U.S. Department of Health, Education, and Welfare, sets forth recommendations regarding identification and encouragement of able girls and women, financial assistance, acceptance of part-time study and work plans, assistance with family responsibilities, and changed concepts of women's role. These recommendations deserve to be supported by action programs, with the diligence of the Federal Services in behalf of women matched by the world of academe and the world of business.

Areas for Further Study

1. Studies similar to the present one should be made for other groups of women doctoral recipients. If a growing body of facts evolves

on the worth of the degree to women and to society, neither the culture nor its able women can ignore any longer the mutual benefits that accrue when women obtain the doctorate.

2. Studies based on women in various professions should be made, especially in areas where shortages exist, to help eliminate stereotypes that restrict professional choices for women.

3. Studies emphasizing and exploring the decision making process leading to the undertaking of the doctorate by women should be made. At the present moment, those women who undertake doctoral study do so almost in opposition to cultural expectations. The rationalizations of these women and their evaluations as to what actually enabled or impeded them in reaching their decision and managing their lives to begin the doctorate might well lead other women to be able to make affirmative decisions to study for the degree.

4. A longitudinal approach to the present study, with the inclusion of additional Oklahoma women doctoral recipients from 1968 to the time of the next study, would add to the long-term view of the attainment and use of the doctorate by women.

5. Since studies of women who complete the doctoral program yield information only on those impeding factors which were overcome, studies are needed of talented women who complete the bachelor's degree but do not go on for graduate study and of women who begin graduate study but fail to finish, to gain their viewpoints of the impeding factors that were not overcome.

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APPENDIX A

STUDY INSTRUMENT AND MAILED MATERIALS

A SURVEY OF OKLAHOMA'S WOMEN DOCTORAL RECIPIENTS

Your name does not appear on this questionnaire. Please feel free to add comments where there is space or to use another page and add comments to particular items by number. Many of the questions will require only a check (✓) mark.

I. Personal Data

1. Year of birth ____________ 2. Number of older brothers ______ younger brothers ______
older sisters ______ younger sisters ______

3. Father's occupation ____________

4. Mother's occupation ____________

5. Did your mother's occupation or attitude toward education influence your educational or occupational goals? ______ Explain ____________

____

6. Indicate the highest educational level attained by each member of your family. Print under the appropriate level an F for father, M for mother, B for brother and S for sister. Use as many B's and S's as you need.

Elementary								High School				College				Master's	Doctorate	Post-Doctoral
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4			

II. Educational Data

7. Name the state in which you were graduated from high school. ____________

8. What year was your first enrollment in any college? ____________

9. Degrees:

	Year	Major	Minor	Institution
Bachelor's				
Master's				
Ed.D. ____ Ph.D. ____ (Check one)				

III. Marital Data

10. Have you ever been married? No ____________ (If "No" go on to part IV.) Yes ____________

11. Year that you married ________ 12. Husband's highest educational level ____________

13. Husband's occupation (be specific as to type, e.g., "owner-manager of a bowling alley," or "cookie salesman" or "associate professor at a state women's college," etc.) ____________

____

14. If husband is deceased, give year ________ 15. If divorced, give year ____________

16. Do you have any children? Yes ______ No ______

17. List their birth years–Sons: ____________ Daughters: ____________

If you wish to give additional information regarding any of the previous questions, please do so here.

____

____

____

____

____

IV. Motivation to Pursue the Doctorate

18. Was there some gifted woman who served as a model for you in your desire to achieve the doctorate?
Yes______ No______

19. Was the original idea or wish to study for the doctorate
______ your own idea?
______ a suggestion or advice from someone else?
(If you check that it came from someone else, indicate the capacity or relationship of this person and the background for the suggestion as made to you.) ______________________________

____

20. In making the decision to pursue the doctorate, what was the reaction of the following people? (Leave the spaces blank for the people with whom there was no interaction. Include additional people who were consulted in the decision.)

	ENCOURAGED ME		NEUTRAL	DISCOURAGED ME	
	Much	Some		Some	Much
Father________					
Mother________					
Husband_______					
Brothers_______					
Sisters________					
Friends________					
Colleagues_____					
Employer______					
Professors______					
Graduate Office___					
Others (specify)___					
______________					
______________					
______________					

21. Which of these were your reasons for pursuing the doctorate? Check as many as apply.
______ to improve competency
______ to qualify for better job
______ to satisfy self-goals
______ more salary
______ desire for recognition
______ desire for leadership
______ other (specify) ______________________
____
____
____

22. Please circle the answer blank of the reason you consider most important in question 21. If none apply, write your answer. ______________________________

____

23. Was your doctorate delayed in any way because you could not afford to lose employment income?
Yes ______ No ______ Explain______________________________

____

24. Was your doctorate delayed in any way because of family responsibilities? Yes______ No______
Explain ______________________________

____

25. (a) Was your doctorate delayed in any way because of the cost of acquiring the doctorate?
______ Yes ______ No (b) How did you finance your doctorate?______________________________

____

____

____

26. If you were to do it over again, would you start the doctorate
______ the same time in your life? ______ earlier in your life?
______ later in your life? ______ not at all?

Explain ____

____

V. Graduate Experience

27. What was the number of actual calendar years from the time you began your doctorate until you received the degree? ________ Explain your pattern or plan of study to account for the time it took you—what helped you or held you back. ________________________________

____

28. If you were studying for the degree all over again, would you try to complete the work for the degree ______ in the same amount of time? ______ in less time? ______ in more time?

Explain ____

____

29. Check the relative importance of EACH of the following factors that led you to choose an Oklahoma institution of higher education for your doctorate:

	Very Important	Moderately Important	Not a Factor
Proximity to the institution			
Cost of acquiring the doctorate			
Prestige of institution			
Academic reputation of department			
Outstanding faculty in your field			
Could meet admission requirements			
Recommended by college teachers			
Educational and research opportunities			
Received scholarship or fellowship			
Had another degree from institution, felt at home			
Other (specify)			

30. Was your choice of an Oklahoma institution of higher education
______ your first choice of a doctoral institution?
______ dictated by some circumstance? (Please describe fully the circumstance that dictated your choice, e.g., "could not go elsewhere because of husband's job" or "could not afford to go elsewhere," etc.) ____

____

31. Did you major in your first choice field at your doctoral institution? Yes ______ No ______ (If "No" explain the limitations) ________________________________

____

32. If you were to do it over again, would you major in the same field? Yes ______ No ______

33. If you answered "No," what other field would you now choose for a major and why? ____________

____

____

34. Did you live near enough to your doctoral institution to be able to live at home and/or commute? Yes ______ No ______ Or did you have to change your place of residence to be near to or on the campus of your doctoral university? Yes ______ No ______

35. How pleased were you with your total graduate school experience at your doctoral institution? Check one.
______Thoroughly satified. Would definitely choose same institution again.
______Satisfied. Would probably choose same institution again.
______Somewhat dissatisfied. Would probably choose some other graduate school.
______Very dissatisfied. Would definitely choose some other graduate school.

VI. Professional Data

36. Current employment status: _______ employed full time _______ employed part time (______%)
_______ retired _______ not employed

37. (a) Full title of present position. ______________________________

(b) Type of employing organization: (Be specific, e.g. "state university," "junior college," "private women's college," "public schools," "advertising firm," etc. Name your employer if you wish to.)

____

(If retired or not employed, describe work experience after receiving doctorate.)

38. Division of working time: (Estimate percentages during the past year so as to total 100%.)
______% Administration (include supervisory work, staff conferences, etc.)
______% Teaching (include preparation, grading, etc.)
______% Counseling and individual work with students, clients
______% Research, scholarly writing, creative work
______% Activities not included above (Describe if possible)

39. Job satisfaction: How pleased are you with your present position? Check one.
______Thoroughly satisfied. No desire to change jobs at the time.
______Satisfied but would consider a change.
______Somewhat dissatisfied. Would change if a good opportunity appears.
______Thoroughly dissatisfied.

40. Indicate the number of years (0, 1, 2, etc.) BEFORE RECEIVING YOUR DOCTORATE that you taught:
______a college class that was your COMPLETE responsibility.
______a college class that was your PARTIAL responsibility (teaching assistant, etc.)
______in secondary schools.
______in elementary schools.

41. Indicate the approximate number of publications since receiving the doctorate.
_______books _______monographs _______articles in national periodicals _______ papers

42. Describe any discrimination you have met since achieving your doctorate due to your being a woman.

____

____

VII. Income Effects

43. Please state your approximate (to nearest thousand) earned income from January to December 1967. (Include fees, royalties, summer salary and other sources beyond regular salary.) $____________

44. Please make an estimate of the amount of ADDITIONAL income you may have realized since earning the doctorate as opposed to not having earned the doctorate. In other words, what has the doctorate been worth to you dollar-wise? $ ____________

Conclusion: Can you estimate the changes in your life due to your having achieved the doctorate—its effect on your place of residence, professional role, relationships with family or associates, satisfaction, honors, advantages or disadvantages, etc.? Please comment freely, using an additional page if necessary.______

____

____

____

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____

____

OKLAHOMA STATE UNIVERSITY · STILLWATER

The Graduate College
372-6211, Ext. 6132
74074

February 20, 1968

Dear Dr.

The United States Manpower Commission and the President's Commission on the Status of Women have pointed out the need for greater numbers of women to continue their studies to higher educational levels. Since 1929, when the first doctorate was granted in an Oklahoma institution of higher education, a total of almost 2400 doctorates have been earned at the Oklahoma State University, the University of Oklahoma, and the University of Tulsa. However, only 224 of these degrees have been earned by women. You are one of these 224 women, and this letter is to solicit your participation in a study of this select group.

The investigation will yield a profile of Oklahoma's women doctoral recipients, will seek to discover and describe the motivational or enabling factors that were important in the attainment of the doctoral degree, and will report the worth of the degree and amount of use and satisfaction.

The enclosed questionnaire is designed for brief answers and should take no more than twenty minutes to complete--although you are encouraged to add as many comments as you wish. All information will be held strictly confidential and handled as group data. Because this is a relatively small population for study, the participation of every person is desired. It is hoped you will be able to return the questionnaire very soon in the enclosed postage paid envelope.

You will, of course, be interested in the outcome of the study and will be mailed a summary of the findings.

Thank you for an early reply.

Sincerely yours,

N N Durham

Norman N. Durham
Dean, Graduate College

NND/mv

Enclosures

OKLAHOMA STATE UNIVERSITY · STILLWATER
The Graduate College 74074
372-6211, Ext. 6132

April 16, 1968

Dear Dr.

A few weeks ago the enclosed questionnaire was mailed to you along with our letter seeking your assistance in surveying the population of women who have received a doctorate from Oklahoma State University, the University of Oklahoma, or the University of Tulsa. Unless your questionnaire has crossed this letter in the mail we have not yet heard from you.

The survey is moving along quite satisfactorily. More than 60% of your companion women doctorates have already returned answered questionnaires. We want our survey to reflect the opinions of all Oklahoma women doctorates. Whatever your status--a recent or early doctorate--retired, employed, self-employed or unemployed--your response is important to the survey.

The enclosed materials are for your convenience in case the original mailing went astray or has been mislaid. Would you be able to return your answered questionnaire within the next few days? Thank you.

Sincerely yours,

N N Durham

Norman N. Durham
Dean, Graduate College

mv

Enclosure

May 10, 1968

Dear Dr.

Although coding of data is now being readied for the computer, there is yet time to include YOUR response in the survey of Oklahoma's Women Doctoral Recipients, and your participation is urgently solicited.

So far, answers from returned questionnaires indicate

that women do make use of their doctorates. (Would you believe that almost 100% of the answers to date indicate professional use of the doctorate?)

that some prejudice is noted (salary-wise; promotion-wise and acceptance-wise).

that in almost every case there are salary advantages, ranging from moderate to tremendous.

that almost every woman emphasizes the self-satisfaction of achieving the doctorate, as well as the advantages of the degree per se.

If these and other findings help in some way to eliminate remaining prejudice against women in pursuit of doctorates, serve to encourage other women, and emphasize the professional contribution made by women who have earned the doctorate, your time will have been well spent in participating in this survey.

Harvard University is found to have achieved 90% response in surveys of its alumni; we hope women who have earned doctorates in Oklahoma will do as well, to heighten the impact of these findings for all women.

The enclosed questionnaire is for your convenience in case an earlier mailing went astray or has been mislaid. Its return within the next week will insure your inclusion in the survey, and it will be very much appreciated.

Sincerely,

Susan B. Mitchell

P.S. A summary of the findings of this survey will be mailed to all participants.

APPENDIX B

DESCRIPTIVE AND STATISTICAL TABLES

TABLE XIII

DISTRIBUTION OF WOMEN DOCTORAL RECIPIENTS OF OKLAHOMA INSTITUTIONS AND OF RESPONDENTS

Year	University of Oklahoma		Oklahoma State University		University of Tulsa	
	Women Doctorates	Respond-ents	Women Doctorates	Respond-ents	Women Doctorates	Respond-ents
1929	1					
1930	1					
1931	1					
1932	1					
1933	2					
1934	0					
1935	3	1				
1936	3	2				
1937	1	1				
1938	0					
1939	3	2				
1940	0					
1941	0					
1942	1	1				
1943	0					
1944	1	1				
1945	0					
1946	1					
1947	1	1				
1948	0		1	1		
1949	0		0			
1950	2	1	0			
1951	3	3	1	1		
1952	1		2	2		
1953	2	2	0			
1954	3	2	0		3	3
1955	2	1	5	3	0	
1956	4	2	0		0	
1957	12	7	1	1	0	
1958	10	8	3	3	0	
1959	4	4	1	1	0	
1960	6	4	0		1	1
1961	13	10	6	6	1	1
1962	6	2	1	1	0	
1963	12	9	1	1	4	4
1964	11	9	4	3	2	2
1965	11	10	3	3	2	2
1966	21	19	9	8	2	2
1967	15	13	9	9	4	4
Totals	158	115	47	43	19	19

TABLE XIV

OBSERVED FREQUENCIES OF RESPONDENTS AND NON-RESPONDENTS BY MAJOR FIELD

Field	Respondents	Non-Respondents*	Totals	
Education	84	23(6)	107	
Arts and Humanities	21	9(1)	30	
Psychology and Social Sciences	22	8(5)	30	
Basic and Applied Sciences	35	6(3)	41	
Other Professional Fields	15	1(1)	16	
Totals	177	47(16)	224	Tabulated x^2 5.24 Significance Level > .30

---

*The number in parentheses reports the number of non-respondents in each field who were not contacted because of being deceased, incompetent, or overseas, or because no address was found.

TABLE XV

OBSERVED FREQUENCIES, TABULATED CHI-SQUARES, AND PROBABILITIES FOR TESTS OF HYPOTHESES RELATED TO TIME LAPSE

Variable	Categories	Median Time Lapse		Tabulated x^2	Significance Level
		Not Exceed	Exceed		
Source of Motivation	Own Idea	48	47		
	Suggested	29	21		
	Own and Suggested	14	16	1.15	> .50
Extent of Encouragement	Encouraged	475	389		
	Neutral	101	93		
	Discouraged	36	44	3.21	> .20
Proximity of Institution	Very Important	60	68		
	Moderately Important	10	3		
	Not a Factor	16	11	5.10	> .05
Delayed by Family Responsibilities	Yes	29	30		
	No	62	54	.29	> .50
Delayed by Cost of Doctorate	Yes	28	24		
	No	63	60	.10	> .70
Delayed: Income Loss	Yes	39	38		
	No	52	46	.10	> .70
Years Pursuing Doctorate	5 or Less	59	53		
	More than 5	32	32	.12	> .70
Hindsight Evaluation	Same	53	15		
	Earlier	36	66	28.06***	< .001

TABLE XVI

OBSERVED FREQUENCIES, TABULATED CHI-SQUARES, AND PROBABILITIES FOR TESTS OF HYPOTHESES RELATED TO YEARS PURSUING DOCTORATE

Variable	Categories	Median Time Lapse		Tabulated x^2	Significance Level
		Not Exceed	Exceed		
Source of Motivation	Own Idea	52	44		
	Suggested	41	10		
	Own and Suggested	17	11	9.84**	< .01
Extent of Encouragement	Encouraged	566	298		
	Neutral	121	73		
	Discouraged	56	24	.87	> .50
Proximity of Institution	Very Important	73	57		
	Moderately Important	11	2		
	Not a Factor	21	4	9.88**	< .01
Delayed by Family Responsibilities	Yes	21	31		
	No	82	33	8.97**	< .01
Delayed by Cost of Doctorate	Yes	26	26		
	No	85	38	5.75*	< .02
Delayed: Income Loss	Yes	35	42		
	No	76	22	19.14***	< .001
Hindsight Evaluation	Same	39	29		
	Earlier	68	35	1.31	> .20

TABLE XVII

OBSERVED FREQUENCIES, TABULATED CHI-SQUARES, AND PROBABILITIES FOR TESTS OF HYPOTHESES RELATED TO CHOICE OF INSTITUTION

Variable	Categories	Institution		Tabulated x^2	Significance Level
		First Choice	Dictated		
Proximity of Institution	Very Important	42	87		
	Moderately Important	8	5		
	Not a Factor	17	10	11.45**	$< .01$
Cost of Doctorate	Very Important	28	41		
	Moderately Important	14	22		
	Not a Factor	21	23	.79	$> .50$
First Choice Major	Yes	63	74		
	No	8	31	8.18**	$< .01$
Graduate School Satisfaction	Thoroughly Satisfied	40	29		
	Satisfied	30	54		
	Dissatisfied	1	20	20.61***	$< .001$
Job Satisfaction	Thoroughly Satisfied	35	41		
	Satisfied	18	42		
	Dissatisfied	11	18	3.65	$> .10$

TABLE XVIII

OBSERVED FREQUENCIES, TABULATED CHI-SQUARES, AND PROBABILITIES FOR TESTS OF HYPOTHESES RELATED TO TYPE OF PRESENT EMPLOYMENT

Variable	Categories	Type of Employment			Tabulated x^2	Significance Level
		University	College	Other		
Type of Major	Education	26	33	20		
	Arts and Humanities	9	11	0		
	Psychology and Social Sciences	7	4	10		
	Basic and Applied Sciences	18	12	3		
	Other Professional Fields	9	6	0	26.48***	$< .001$
Graduate School Satisfaction	Thoroughly Satisfied	29	25	8		
	Satisfied	31	34	17		
	Dissatisfied	7	6	8	6.76	$> .10$
Extent of Publication	Not Exceed Median	41	33	12		
	Exceed Median	23	18	17	5.08	$> .10$
Job Satisfaction	Thoroughly Satisfied	41	26	8		
	Satisfied	18	25	13		
	Dissatisfied	8	13	7	12.88*	$< .02$
1967 Earned Income	Not Exceed Median	38	23	17		
	Exceed Median	27	40	11	7.73*	$< .05$

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TITLE

WOMEN AND THE DOCTORATE: A STUDY OF THE ENABLING OR IMPEDING FACTORS OPERATIVE AMONG OKLAHOMA'S WOMEN DOCTORAL RECIPIENTS IN THE ATTAINMENT AND USE OF THE DEGREE (Final Report)

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ABSTRACT

Among women who have earned the doctorate at a university in Oklahoma, a questionnaire investigated their personal characteristics, the motivational and enabling or impeding factors operative in the attainment of the degree, and the worth of the degree to the women and to society in terms of use and satisfaction.

Tests of hypotheses investigated time lapse from the bachelor's degree to the doctorate, years pursuing the degree, choice of institution, and type of employment.

The high rate of use of the doctorate (99 percent), the personal and professional satisfactions expressed, and the income appreciation reported, led to the conclusions that both society and the women were well repaid in their attainment and use of the degree. Oklahoma's women doctoral recipients were seen to serve not only Oklahoma but also the nation.

Apparently, the lack of guidance, counseling, or cultural expectations results in too late a start on the doctorate for many women; and they could accomplish the degree in less time if aided financially. Discrimination remains, and action programs matching those of the Federal Services are needed to effect a more equitable reception of women in both the world of academe and the world of business.